REVIEWS.

ART. XIV.—*The Principles of Surgery.* By JAMES MILLER, F. R. S. E., F. R. C. S. E., &c. &c. Third American from the second and enlarged Edinburgh edition, illustrated by two hundred and forty engravings on wood. Revised, with additions, by F. W. SARGENT, M. D., member of the College of Physicians of Philadelphia, &c. Philadelphia, Blanchard & Lea, 1852: 8vo. pp. 751.

WE believe that no single volume on the principles of surgery ever found greater favour with the profession than did the first edition of Prof. Miller's book. Its style was attractive, and it evidenced a desire on the part of its author to win more attention to the *science* of surgery than was commonly bestowed; while it successfully demonstrated that the great body of facts which had been constantly accumulating in the course of the *practice* of the *art* could be harmonized and classified under definite laws, with as much propriety and advantage as the corresponding materials of any other department of human knowledge. It cannot be denied that the petty details of mechanical surgery, the multiplying and modifying of operations, particularly, have engrossed a disproportionate share of the attention, and obtained a higher place in the estimation of surgeons than they deserve, as compared with the investigation of the pathological laws which regulate the origin and progress of surgical diseases, and the vital reparative actions upon which the success of the simplest operative proceedings must depend. We do not say that surgery as a science has been materially injured by this division of labour, further than has accrued in consequence of the erroneous impressions formed as to the comparative importance of the principles and the art. For, it is necessary to collect facts before laws can be framed; and it *generally* happens that those who are the most attentive to the details, and most fond of the minutiæ of practice, are the least qualified to group these particulars according to their analogies, and to deduce the legitimate scientific conclusions from them. Hence the multiplicity of crude and unfounded *laws*, so called, in medicine and surgery.

Professor Miller, however, has not only the opportunities and the powers of observation necessary to the proper collection of facts, but the higher qualifications which enable him to combine and arrange them; and, consequently, he has presented us, in the volume now under review, with a most admirable digest of the principles of surgery. By describing pretty fully the peculiarities of the several pathological processes as they manifest themselves in the different tissues, he has contrived also to introduce as much of practical surgery as could be expected in a volume limited in size and confessedly devoted to the theory. Many important subjects, on the other hand, are not noticed, as wounds of the cavities, hernia, stone in the bladder, diseases of the eye, &c.; but these do not require any mode of treatment so special to themselves, excepting in the peculiarity of operative proceedings, as to need separate mention. We will endeavour, by quotations and by comments, to present a fair exposition of the character and merits of the volume.

After a comprehensive, though very general, outline of the history of surgery, originally contributed by Mr. Miller to the *Encyclopedia Britannica*, the proper subject of the volume is commenced by an account of the "Constitutional Affections in Surgery," including fevers, cachectic affections, and affections of the nervous system; and the modes in which affections of internal organs occur as complications with surgical disease are described.

The author treats of *Scrofula and Tubercular Disease* as one, while he virtually admits that, to a certain extent, at least, some distinction exists between them. He says:—

> "The frequent association of scrofula with a peculiar form of morbid product has long been observed. This deposit, which will presently be described under the name of *tubercle*, occurs very frequently in enlarged lymphatic glands, leading to a slow process of suppuration and ulceration there. It may also affect various internal organs, as the lungs, brain, intestinal and mesenteric glands; in which situations it proves the source of various destructive diseases. We cannot, however, limit the term scrofula, as some have done, to disorders arising from tubercular deposit; inasmuch as most affections of the skin, mucous membranes, and joints, in scrofulous individuals, have no such origin. Nor, on the other hand, can it be admitted that tuberculization of the internal organs, at least in adult life, is always, or even generally, a disease of the scrofulous habit. All that can be fairly said is, that tubercular disease of the external glands is a frequent concomitant of scrofula; as is also a similar affection of the mesenteric glands. And that, in a certain indeterminate number of instances, tuberculization of internal organs follows, or accompanies, the characteristic evidences of scrofulous disease; while, in others, it is quite an independent affection. Still, however, as most of the forms of tubercular disease which come under the notice of the *surgeon* are distinctly scrofulous, it is requisite to treat of these affections under one head."—p. 63.

This is, perhaps, the best manner of treating the subject, instead of attempting to prove at length the identity or the distinctiveness of the two; for after all that has been written on this *vexata quæstio*, the decision seems to be as remote as ever. Indeed, until pathologists can be induced to agree to consider as *tuberculosis*, that complex diseased condition only of which the product which we call *tubercle* is present as the anatomical representative, we know not how the unity or diversity of the two cachexiæ can be determined; for until some such starting-point be adopted, fixed and clearly defined in its characters, there must continue to be disputes about terms. It would certainly be much more in accordance with the principles which govern us in the diagnosis of other affections, to associate with the symptoms of tubercular disease an anatomical lesion which is found to be constant, if such an one can be shown to exist. With the exanthemata, we have an eruption peculiar to each; with typhoid fever, an especial lesion of the follicles of the mucous membrane of the small intestines, &c.; with carcinoma, a distinctive anatomical structure. And however strong may be our conviction, from the symptoms, that we have such or such a disease to deal with, if the peculiar physical appearance be wanting during life, or if we do not find after death the lesion which we commonly associate with the disease, we are compelled to admit that a doubt exists as to the correctness of our diagnosis.

We believe that much of the confusion and conflict of opinion, upon the question of the identity of scrofula and tuberculosis, arises from the vagueness of our ideas as to what really is scrofula, and from certain assumptions concerning the morbid product which we ordinarily ascribe to it. The term *scrofula* was originally employed to designate the swellings which were observed in the necks of pigs, and, by extension from them, of human beings (see Phillips on Scrofula, chap. i.); and even to this day these same enlargements of the superficial lymphatic glands are considered as most pathognomonic of this disease, which is also made the reputed parent of many other chronic and very obstinate local affections, of almost all such, in fact, which cannot positively be ascribed to some other source. And now, since it has been clearly ascertained that the usual termination of these enlarged glands is in suppuration and ulceration, that the morbid deposit thrown off from them is identical with the tuberculous, is, indeed, *tubercle*, (*vid.* Lebert, "*Des Maladies Scrofuleuses et Tuberculeuses*,") and that the ulcers left resemble those which are of undoubted *tubercular* origin; it is immediately inferred, and with apparent propriety, that scrofulosis and tuberculosis are one and the same.

Now, we ask, would it not be wiser, more in accordance with the spirit of exactitude which is gradually working its way into medical reasoning, to consider, with Lebert, as *tuberculosis* that form of constitutional disease which only and always produces *tubercle*, whether it exhibits itself in the superficial or visceral lymphatic glands, or in internal organs; and to group under the head of *scrofula* those other chronic inflammatory or non-inflammatory engorgements of the lymphatic bodies, the local, subacute, or chronic inflammations implicating chiefly the skin and subcutaneous areolar tissue, the eyes and ears, the articulations and the bones, and which, equally without any peculiar morbid deposition, manifest a tendency to ulcerate and suppurate; or else to reject altogether the term *scrofula*, which conveys such different impressions to different minds, and means nothing very definite, and to regard, with Mr. Phillips (*op. cit.* Am. ed., p. 31)—

> "Those diseases called scrofulous, but in which no scrofulous matter is present, as not scrofulous at all, but simply the result of such low inflammatory action as is often set up in a debilitated state of the constitution?"

(It must be borne in mind that, in speaking of "*scrofulous matter*," Mr. Phillips refers to that found in the superficial lymphatic glands, which is really tubercle.)

We think it must be admitted that, in many cases of inflammation occurring in persons of the so-called scrofulous diathesis, a deposit takes place in the inflamed part, which is neither tubercle nor analogous to the product of healthy inflammation; not yet does it possess physical and chemical properties so peculiar and constant as to be deservedly termed scrofulous matter, *par excellence*. This deposit is very frequently removed by absorption, without exciting inflammation and suppuration, from the external lymphatic glands, and probably also from the lungs (*vid.* a paper by Dr. Pepper, "on Scrofulous Inflammation of the Lungs," *Am. Journ. Med. Sci.*, April, 1852).

But, to return to Professor Miller. After pointing out the peculiarities of the scrofulous cachexia, and the general and local effects induced by it, he describes the physical and chemical qualities of tubercle, and illustrates the former by some very excellent drawings copied from Dr. Bennett's contributions to this subject. He has omitted, however, to trace the changes which occur in the tubercular deposit; but this has been done fully in a note by the editor. The special pathology of scrofula and tubercle is detailed in the second part of the volume, where the diseases of particular tissues are described.

We pass to the chapter on *Inflammation*. This important and complex process is very fully explained; it occupies nearly one hundred pages. The author has evidently studied this subject with very great care, by clinical and experimental aids, as well as by reference to the best authorities. Indeed, he has accomplished this portion of his task so well, that he has scarcely exposed himself to criticism, excepting in some few and comparatively trivial points.

We may observe that he does not pursue to any length the purely speculative portion of the theory of inflammation. And, in questions of this kind, whenever he is compelled to express an opinion, it is generally in favour of moderate views. Thus, in the section upon the *theory of inflammation*, p. 116, he says:—

> "It has often been disputed whether inflammation is caused by increase or diminution of vital strength in the part—an excitement or a debility; and both extremes have been tenaciously held and argued. According to the preceding account, the fact may be said to lie nearly midway between the disputants; the action being found to commence with excitement, and probably with an exaltation of the part's vitality; this, however, proving usually of short duration, and succeeded by growing debility and much ultimate prostration. True inflammation having been established, vital *power* is sunk very low. And what is worse, from this overthrow the part, once truly inflamed, never wholly recovers, but ever remains more prone to action, and less able to control it; a fact, which it is of much importance that both patient and practitioner should bear in remembrance."

It is very difficult to avoid using forms of expression which have long been employed in medical writings and discussions, even though we may no longer use them in their original sense. Thus it is with the terms *action*, *action of vessels*, &c. The former occurs, as the reader will have noticed, in the above quotation, and elsewhere; yet Mr. Miller does not seem to lay any great stress upon the state of the bloodvessels in and about the inflamed part; regarding them, as do all enlightened pathologists, merely as carriers of the blood, and looking upon the process of inflammation as a modification of that of nutrition; and hence, seeking for the explanation of its phenomena primarily in some disturbance of the normal relations and reactions between the tissues and the blood, rather than in any alteration in the condition of the vessels, or in the motion of the blood itself.

The period of transition from the healthy condition to the actual establishment of inflammation, is divided by the author into three stages: 1. *Simple vascular excitement;* 2, *active congestion;* 3, *true inflammation.* This division would have been more accurate, as well as more comprehensive, as it seems to us, if the instrumentality of the *nervous* system in the causation and phenomena of the process at its very outset, had been as prominently and distinctly acknowledged as the vascular. We would have the first proposition to read *simple nervous and vascular excitement;* and, indeed, throughout the whole process the same nervous agency should be allowed to play an important part. For, although in plants local vascular turgescence and increased nutrition are often excited by local irritation, as is exemplified in the production of the galls; and, although in animals inflammation is not unfrequently induced in parts paralyzed—proving thereby that the existence and integrity of the nervous system is not *essential* to these processes—there are yet abundant facts to show that where there is a nervous system, and especially where it is most highly developed, it does *exert an influence* upon normal as well as morbid nutrition. What the nature of this influence is—whether it displays itself in the reaction which the molecules of the tissues exercise upon the blood-plasma, or whether it is primarily wrought upon the bloodvessels—we are not yet able to determine.

And there is another point of view from which the importance of the nervous element in the process of inflammation may be contemplated. The nervous system constitutes, undoubtedly, the *protective* element of the animal organism. By means of it animals are placed in relationship with the exterior world; by it they are informed of the existence of things necessary to their being, and are enabled to possess themselves of these; and by it they are made aware of dangers which threaten them, and also have the means of avoiding or overcoming them. By it, too, they are made acquainted with their own interior condition—their necessities and the derangements to which they are continually subject. To suppose that a piece of mechanism so wonderful in the perfection of its structural arrangements as the animal organism—as man, for example—would not be furnished with powers adequate, within a considerable extent, at least, to the protection of itself against the effects of disease, and to the reparation of structural injury, would be to sink the power and wisdom of the Creator below the level of the same attributes as displayed by man in the construction of much of his handiwork. Inflammation is oftentimes one of those preservative and protective agencies in the economy; it is one of the means by which the system or the part rids itself of various agents of mischief, introduced from without or generated within, and from which it could not otherwise free itself. In Surgery, examples are common; as when a foreign body is lodged in a tissue, and is ejected from it by suppuration; when the course of mortification is arrested, and the dead part is thrown off; when a malignant or a non-malignant tumour is got rid of by sloughing. In the practice of Medicine, the same thing is witnessed in the elimination of tubercular and cancerous deposits; in protective pleurisy and peritonitis; and probably, also, in the rejection of subtle *materies morbi* by the exanthematous fevers. Now in these and similar cases of what may be called protective or eliminative inflammation, it must be the nervous element of the part implicated which warns of danger or injury, and is primarily the active agent in the protective or reparative process. We think, therefore, that this element has been too much overlooked by Professor Miller in his exposition of the theory of inflammation.

With regard to the second stage of the morbid process in question, *active congestion*, we agree with the editor in the opinion that it is made to embrace many of the phenomena of actual inflammation; indeed, the symptoms which the author ascribes to it are many of them such as properly belong to the early and middle stages of true inflammation, as usually described. He says, p. 111:—

> "The circulation loses its acquired rapidity, and becomes slower even than in health. The red corpuscles are no longer limited to the central current, but encroach more and more on the lateral and clear 'lymph spaces.' The colourless, or 'lymph globules,' are increased in number; and by becoming unusually adhesive to each other and to the walls of the vessels, are supposed to act obstructively—contributing to the slowness of movement in the blood. Exudation is more copious than in the previous stage, and of a different kind. It consists chiefly of liquor sanguinis; and this is altered from the healthy standard. The fibrin is increased, not only in quantity, but also in plasticity, or tendency to become organized."

Consequently, he is obliged to advance considerably towards an actual loss of vitality in the part before it can have attained the stage of inflammation proper, which he says is—

> "Denoted by more or less extravasation and destruction of texture, and the formation of pus in progress. Thus, true inflammation, structurally considered, consists of suppuration, actual or imminent, surrounded by fibrinous deposit, and that encircled by effusion of serum."—p. 116.

Upon this point the editor observes:—

> "In many organs, as in the lungs, the heart, the serous and synovial membranes, undoubted and violent inflammation often exists without the formation

of pus at all; and even upon the exterior, suppuration is not always consequent upon true inflammation, at least as this process is usually understood."—*Note* to p. 116.

The symptoms of inflammation; its local and general effects; its duration and character; the circumstances which affect it in both of these particulars; and its terminations in *resolution*, in *excessive deposits* of various kinds, in *suppuration*, in *ulceration and sloughing*, are fully and satisfactorily described. And we can assure our readers, that the views unfolded by the author upon these important points, are in accordance with those which are considered as most judicious and enlightened. The chapter, also, on the *treatment* of inflammation furnishes a complete exposition of all that scientific research and clinical experience have agreed upon as most conducive to the successful management of the disease.

Then follow successive chapters on the *Healing Process*, and the different modes in which it is effected; on *Acute and Chronic Abscesses*, and their varieties, purulent infiltration, secondary abscess, pyæmia, &c. &c.; on the numerous kinds of *Ulcers;* on *Mortification; Hypertrophy, Atrophy*, and *Absorption*. These chapters are not meagre delineations of principles alone, but they are exceedingly rich both in the results of scientific investigations and in practical teachings; in the latter particular they go much more into details than do most of the books which are devoted exclusively to the *practice* of surgery.

The chapter eighth, on *Tumours*, is worthy of great praise, and we shall best exhibit its excellences by making a few extracts from it.

At p. 284, of the Origin of Tumours, the author says:—

"Tumour is always the result of perverted growth and nutrition; and its origin, in particular cases, must be owing to some predisposition either of the part or of the system. The latter, indeed, is frequently shown very plainly by a tendency to the generation of numerous growths of the same kind in one individual. Now, any cause which, in a person so predisposed, leads to an interruption, even temporarily, of the normal function of growth in a part, must necessarily lay the part open to the action of the predisposing causes of tumour. Such a perversion of the normal process occurs, when a blow or other injury leads to extravasation and inflammatory exudation. Under ordinary circumstances, this exudation merely accomplishes the wonted salutary end in view; namely, restoration of the continuity of texture, which the extravasation had broken up; and, on this end having been attained, redundancy of exudation disappears by absorption, and the normal condition of texture is more or less completely restored. But, not infrequently, the absorption is incomplete; a redundancy of fibrinous plasma, in process of organization, remains; formative action of the bloodvessels continues in an exaggerated, though simple form, in the seat of exudation; the plasma is added to, while the surrounding textures are undergoing merely the quiet and healthful changes of ordinary nutrition; the swelling increases; and its growth is now distinct and independent of the surrounding parts. This we believe to be the most frequent mode in which the simple tumour originates; not from the organization of extravasated blood; and not as a direct result of, or attendant on the ordinary inflammatory process; but this and the extravasation being rather related to it as the exciting cause. The blow and the extravasation are followed by fibrinous exudation, the result of an exaggerated nutrition effected by the inflammatory process, with a restorative and salutary object in view; the exudation is redundant, and the excess is not wholly absorbed; continuance of deviation from the normal structure induces a continuance of exaggerated nutrition at that part; accumulation of organizable plasma results; and commencement of a new growth is established. If the morbid local increase of deposit be of a simple fibrinous and plastic character, a simple tumour results; but if, from constitutional vice, or other causes, it has departed from the ordinary fibrinous character, then the resulting tumour equally deviates from similarity to the original texture."

The histology of the *simple homologous* tumours, is analogous to that of the normal tissues of the same kind, and their mode of growth presents scarcely more difficulties to the student than the development and growth of the natural structures of the body; for their elements are similar and their nutrition is effected in the same manner. But the reason why a particular form of tumour springs up from one part, and another from another part, or why the modification of nutrition should assume the character of tumour at all, will perhaps always be a mystery. Much greater difficulty occurs in the case of the *heteromorphous* growths, the peculiar elements of which have no analogues in the normal structures. Merely to refer them to *special constitutional vices*, rather multiplies than lessens the difficulty, because the origin of the parent dyscrasy is equally an enigma. Mr. Simon well observes (*Lectures on Pathology*, p. 152): "The evolution of a cancerous tumour in the body marks, I apprehend, a new state of things in respect of the patient's total organization and vitality; just as much as the first acting of the kidneys in the embryo, and of the lungs in the infant, respectively mark new eras in the animal's progressive development." And one cannot but agree with him in believing that, in order to gain the clue to this labyrinth, we must first acquire accurate knowledge of the chemical alterations which the blood has undergone at the outset of the cancerous disease, by comparison of the total chemistry of the cancerous body—blood, tumour, excretions—with the total chemistry of the healthy body.

Professor Miller adopts, as the most practical and useful classification of tumours, that which is based upon their malignancy or benignity. But he admits that these two great classes pass into each other by very insensible and scarcely describable gradations. With respect to the *degeneration* of benignant tumours, he contends that this event does happen, and not unfrequently. He says:—

> "Degeneration may proceed from one of two causes; general or local. While a tumour is yet simple, the constitution may undergo an untoward change, cachexy becoming established; and the tumour will then gradually sustain a corresponding alteration. In this manner, a tumour of the breast, originally of a non-malignant nature, often insensibly passes from the simple to the carcinomatous structure and tendency; the signs of degeneracy in the system preceding those of the evil change in the part. Or, on the other hand, the system yet remaining apparently unchanged, the tumour itself degenerates, in consequence of repeated local excitement; as by blow, puncture, or stimulant malapraxis."

And, again, after speaking of the effect of acute inflammatory action upon the condition of the tumour, he says:—

> "The more chronic and minor action is less marked in its operation, but equally decided and often more untoward in its effect. At first, it may cause mere acceleration of the growth, by increase of the same deposit as before; the tumour enlarges, but is yet of its original simplicity of structure. But, after a time, the deposit changes; the action is altered, too; and the nutrition is not merely exalted, but perverted," &c.—pp. 288-9.

Degeneracy from the first cause, the inter-occurrence of constitutional cachexy of the cancerous character, we cannot but admit; for if this dyscrasy may occur in an individual whose nutrition has to all appearances been normal in kind and degree, much more may it not supervene in one whose nutritive processes have already manifested a disposition to, nay an actual, aberration? and the product of this degeneration will be a heterologous deposit. But that a tumour originally simple in its character, can by mere local irritation, without the prior induction of the constitutional cachexia, become malignant, we are not prepared to believe; this doctrine removes from the class of cancerous tumours the property upon which their distinctiveness is mainly based; namely, their dependence upon a peculiar alteration of the constitution for their production, which Professor Miller himself admits.

After discussing various other matters connected with their general pathology, the author proceeds with the consideration of special tumours. Those which are particularly described are *the simple tumour*, or simple sarcoma; fibro-plastic tumours; the true *fibrous*; the *fibro-cellular*; the *fatty*; the *cystic*; the *cartilaginous*; the *calcareous*; the *scrofulous*, and the varieties of the *malignant tumours*; the *vascular* and the *osseous* are described in connection with diseases of the vascular system, and the bones respectively. The tumours of each class receive careful attention, in every important particular; and beautifully executed drawings illustrating their appearance *in situ*, as well as in section under the microscope, accompany the explanations of the text. The account given of them embraces the sum of what has been unfolded by the investigations of the ablest pathological inquirers in Great Britain and on the continent, down to the time of the publication of the volume.

From the judicious remarks of Professor Miller concerning the treatment of tumours, we will quote what he says with reference to exploratory puncture, where doubt exists as to the character of a case under examination.

> "Such exploration is by no means so light a matter as some would seem to consider it. It is not warrantable to plunge a trocar into every and any tumour, of whose nature there may be some doubt. If it be an abscess, no harm ensues; the puncture is immediately enlarged for the purpose of due evacuation. If it prove to be a solid growth, there may still be no harm; provided patient and surgeon are prepared at once, or at all events, within a day or two, to proceed to extirpation. But much injury will not fail to result, if, after puncture, the tumour be left to itself for some considerable time; and, more especially, if absurd attempts be made by stimulation to effect its removal by absorption. There is no more sure exciting cause of a tumour's degeneration, than the thrust of an exploratory trocar. On a section being made of the mass, after removal, the origin of the doubly depraved structure may not unfrequently be seen in the instrument's track. While, therefore, exploration is expedient, to guard against errors of diagnosis which might otherwise occur, and which might lead to serious error in practice, its use ought to be limited to very doubtful cases, in which other means of diagnosis, patiently and skilfully used, have failed to satisfy; and not even in such cases should it be had recourse to, unless early operation, if not immediate, have been determined on, in the event of the swelling being proved to be an undoubted and indiscussible tumour."—p. 328.

The succeeding chapter, on *Hemorrhage*, embraces a very good account of all the varieties of this accident; the predisposing and exciting causes upon which each depends, their effects upon the system, and the natural and artificial hemostatic agents. Many of the accompanying drawings are new and very expressive.

With this chapter closes the first section of the volume, devoted, as we have seen it to be, to an account of the general or constitutional surgical affections. The second section describes the diseases of *Particular Tissues*, and their treatment.

Among the diseases of the *Integument* are enumerated erythema, erysipelas in its numerous phases, hospital gangrene, furunculus, carbuncle, diffuse inflammation of the areolar tissue, entozoa and tumours of the integument.

In the treatment of *Erysipelas*, of the simple variety, which "is from the first acute, and obviously progressive, local bloodletting is advisable," the author says. He objects to leeches, as being apt to stimulate the surface by their bites and suction; he prefers *punctures*, rapidly made with the point of a lancet.

> "This practice," he continues, "may startle those who are practically unacquainted with it, by its apparent severity. But the severity is only ideal. We grant that, in one point, the infliction of temporary pain, it may be more severe than leeching; but in every other it is much and truly superior. Alarming it may be to the timid patient; but it is quickly over. A few seconds suffice; and the relief is both satisfactory and instant. In the more severe cases, which demand its use, the pain of infliction is often the least. The acute pain, already existing in the part, masks that of the punctures; in the same way as the operation of scarifying tense and painful gums seems, not unfrequently, to be agreeable rather than otherwise to the teething child. And, as already stated, the ultimate cicatrix of each puncture is so trifling, as to render the practice equally applicable to the face, when erysipelatous, as to any other part of the surface."—p. 369.

After a careful and minute description of each variety of the disease, he gives the following general characters of erysipelas, p. 377:—

> "Tendency to spread; tendency to change its site by metastasis; tendency to prevail in an epidemic form; deficiency of concomitant fibrinous and plastic exudation; rapid attainment of the suppurative crisis. The pus, as if imperfectly concocted, thin, and non-laudable; by its diffusion, danger to texture great. In the constitutional symptoms, the inflammatory type seldom predominant; tendency to the asthenic character usually strong, often even from the first; gastric and biliary disorder, with general derangement of secretion, primary and great. Active local treatment not advisable, when texture is not in danger; but when diffused suppuration is threatened or established, free incision alone remedial. Active constitutional antiphlogistics in few cases well borne; unnecessary, except in the most sthenic and intense examples; and, even then, to be employed with much prudence and moderation. In the majority of cases, and comparatively early in all, constitutional support, on the contrary, demanded. In short, an asthenia, or tendency thereto, reigns throughout. And by some this is accounted for, by supposing a poisonous influence to be exerted on the system; either generated within, during or by the inflammatory process; or conveyed from without, by atmospheric influence, or by direct contagion."

The chapter on the affections of the *Serous* and *Mucous Membranes* includes *inflammation* of both, and *Polypi.*

The next subjects treated of are affections of the *Periosteum* and *Bone*, in a lengthy chapter of seventy pages, embellished by very many excellent drawings. That portion of it which is occupied with the consideration of *inflammation* of bone, and its various results in *change of structure;* in the *formation of pus* upon the surface, or in the interior, either diffused or limited, acute or chronic, simple or scrofulous; in *ulceration*, simple or carious; and in *necrosis*, will amply repay a careful study. The different forms of *morbid growths*, occurring in and upon the bones, receive also their full share of consideration, not only as to their pathological nature, but likewise with reference to their diagnosis and treatment.

As an instance of the author's constant endeavour to apply sound principles to the treatment of local diseases, we present the following extract from his remarks on the treatment of periostitis. The suggestion bears upon a condition which is by no means uncommon, and which it is very important to relieve:—

> "Sometimes action seems to be partially arrested, yet does not decline; a tense and painful swelling remains unabated; and, on the contrary, tending still to increase. It is plain that relief of tension would be a most important

indication under such circumstances. For a similar state of matters, unconnected with bone, we would freely practice incision; tension would be at once relieved, and action would speedily decline; the wound would suppurate, and its margins would perhaps slough, but granulation and closure would speedily follow. Here, however, similar procedure would be rash and untoward. Tension would doubtless be relieved; but with suppuration, which is inevitable, would certainly come either ulceration or death of the bone; the very results which we seek to avoid. Direct incision, therefore, is plainly unwarrantable. But, by inserting a fine bistoury, or tenotomy needle, at a little distance from the tense part; passing it over, cautiously, beneath the integument, then turning and pressing its edge so as to divide the tense membrane wholly to the desired extent; cautiously withdrawing the instrument, so as to make a valvular, oblique, and subintegumental wound; and, finally, closing the single integumental puncture immediately, with isinglass-plaster, or collodion—in fact, by completing the wound so as effectually to prevent introduction of atmospheric influence, and thereby obviating the chief risk of suppuration—we may obtain diffusion of the swelling, relieve tension, and so facilitate both resolution of the action and discussion of its results. This manœuvre, however, requires skill and caution in its performance; and even with these, is not wholly devoid of risk. It is, therefore, not to be indiscriminately employed, but should be reserved for those cases which otherwise prove obstinate, and in which aggravation and suppuration seem imminent."—p. 397.

Next in order follows an excellent chapter on *Diseases of the Joints.* It is based on the most recent and most accurate investigations upon the normal and pathological anatomy of the tissues concerned; and is illustrated, as are all the chapters in the book, with admirable drawings. We know of no formal treatise in which so good a history is given of the changes of structure which disease induces in the articular cartilages. The paper of Dr. Redfern, of Aberdeen, is used as the starting-point, and much light has been shed thereby on the subject. The examinations made by Dr. Redfern have confirmed the account given by Mr. Goodsir, as to the process of cell-modifications in diseased cartilage, and the multiplication of nuclei; and, likewise, as to the formation of a false membrane at those points where the cartilage has been removed, and even between the cartilage and the subjacent bony surface. This false membrane becomes vascular by extension of vessels from the bone and synovial membrane; and hence, probably, has resulted the belief that the cartilage itself becomes pervaded by vessels, in inflammation. Dr. Redfern has also devoted much attention to the alterations which the intercellular substance of the cartilage undergoes. He describes this as being in the normal state homogeneous and structureless; but in the process of disease it becomes—

"Split up into bands and fibres; these are often formed in partially and slightly diseased joints, giving a soft and velvety aspect to the surface of the cartilage."—p. 478.

It will be remembered, doubtless, that Dr. Leidy described, in the *American Journal*, April 1849, the intercellular hyaline substance of cartilage as exhibiting a minutely fibrous structure in the normal state, and the cells as subject to increase by division. Thus, as Professor Miller remarks, the analogy between the normal and morbid phenomena is apparent. Dr. Leidy has repeatedly confirmed his original observations, so that the matter is no longer to be doubted. We have here, consequently, a beautiful illustration of the knowledge derivable with reference to pathological processes, from the intimate research into the normal.

There are numerous sections of this chapter, from which we might advantageously quote the author's observations; but we must restrict ourselves in this respect. We will select some passages from his remarks upon *Loose Bodies in Joints*. Of their mode of formation, he says:—

> "It is probable that in various ways these substances may be produced. 1. By external growth. A fibrinous deposit takes place exterior to the synovial membrane; and, as it enlarges, that membrane is pushed before, forming a close envelop. The little mass projects into the cavity of the joint, and is not unlikely to assume a pedunculated character. On a sudden movement, the peduncle may be severed; and the extraneous substance is thrown loose into the joint. 2. By internal formation, in the substance of the synovial membrane. A fibrinous mass may form in that tissue, analogous to the adventitious structures found in the 'fimbriated' condition of the synovial apparatus, formerly described (p. 473); but differing from such formations in being single, instead of gregarious; and ultimately becoming much more dense in structure. It is not difficult to imagine how such a formation, at first attached, may become separate, and float loosely within the cavity. 3. By epithelial growth within the joint's cavity; epithelial cells accumulating there, cohering, and growing by abstraction of nutritive material from the synovial fluid. 4. By hypertrophy of original cartilage. Joints, especially those of the elbow and knee, are not unfrequently found in museums, with marked and irregular enlargement of their cartilage, and also of the subjacent bone, at the outer rim of the cartilaginous surface. Part of these excrescences may point towards the joint, showing more or less of the pedunculated form; and portions may be found within the joint, some quite loose, and others yet adherent. Such preparations sufficiently indicate the abnormal process whereby this mode of formation may be effected. It should also be observed, however, that such hypertrophy is not mere enlargement of the original cartilage. The texture is changed, becoming infinitely more dense and fibrous; and it is a portion of this altered tissue which is projected and detached."—pp. 495, 496.

And we will also transcribe the *resumé* of the author's description of the operation which he advises for the removal of the body; partly on account of the excellence of the operation, and partly to convince those of our more *practical* readers, who may think that a book on the *Principles of Surgery* is not adapted to their tastes, that science nowhere exhibits itself to greater advantage than when applied to the *art* of surgery.

> "The operation, as we would advise it, is thus seen to consist of distinct parts. 1. The prophylactic preparation, occupying not less than several days. 2. The oblique valvular puncture; carefully avoiding the entrance of atmospheric air even into the superficial areolar tissue. 3. Extrusion of the loose body into the areolar tissue, in a different route from that of the puncture; and lodgment of it, subcutaneously, at a safe distance from the synovial wound. The second and third parts of the procedure are accomplished at once, in immediate succession; and then two or three days, not more, are allowed to elapse, with a view to consolidation of the wounds. 4. By a direct incision, the offending substance is finally removed from its temporary abode. It is not at once taken away through the original puncture, because it would be in most cases very difficult to accomplish this without the admission of atmospheric influence; the almost certain consequence of which would be synovial inflammation of an intense kind, ending in suppuration and loss of the joint. And, as experience has proved, it were alike unsafe to leave it unremoved from its secondary and subcutaneous abode; it being extremely probable that an effort would be made by nature to dislodge it thence, by the ordinary means of inflammation and suppuration of the textures around. And then we should, probably, be unable to prevent involvement of the synovial membrane."—pp. 497, 498.

Several other modes of relief are also described. After enumerating and defining the various forms of Anchylosis, the author states, in speaking of the treatment, p. 504:—

> "In all cases, anchylosis should be warily interfered with. It is an imperfect cure; yet both a saving of the part, and a cessation of morbid action. And it may be regarded as a compromise between health and disease; the rash infringement of which is most likely to be visited by untoward consequences. The true form is plainly not to be broken up, either by gentle or by violent means. The latter have been made trial of, with a result truly deplorable. A certain M. Louvrier invented an apparatus, by the rude force of which, stiff joints were instantaneously straightened; and patients were submitted to the torture of this 'infernal machine.' A few escaped with comparative impunity, yet with little improvement in the part; in others, laceration, suppuration, gangrene, delirium, were the results; 'accidents frightfully severe, and ordinarily followed by death.' The only means of treatment to which true anchylosis is amenable, is that formerly noticed, by section exterior to the obliterated joint, and formation of a false joint thereby; an operation which has been successfully applied to the hip and knee-joints, but in regard to the expediency of which we desiderate a larger experience."

In connection with this paragraph, is a note by the editor, enumerating all the cases of anchylosis of the hip and knee-joints in which Dr. Barton's operation has been performed, *twelve* in number. In *one* instance only did the patient die, although *two* of them were certainly very unpromising subjects for the operation. Hence, it cannot but be regarded, for patients favourably circumstanced, as an admissible and hopeful operation, so far as experience informs us. But, as the editor remarks:—

> "The operation is by no means free from danger. In fact, it establishes a sort of compound fracture of the femur, and is liable, as was exemplified by several of the cases quoted, though undoubtedly in a less degree, to all the hazards which attend this injury; hazards from long and profuse suppuration, phlebitis, &c. It is consequently a very important and most responsible position which the surgeon assumes in suggesting and recommending it to his patient," &c.

The fourteenth chapter is upon *Diseases of the Arteries.* Of course, by far the larger part of it is occupied in considering the pathology and treatment of *Aneurism.* The account given of this most important affection is exceedingly well conceived in all its parts, and is illustrated throughout by happily selected drawings. It embraces a minute exposition of the effects of ligature on arteries, derived mainly from the researches of Mr. Spence, a portion of which was published in 1843, in the *London and Edinburgh Monthly Journal;* the remainder has not yet been made public, but Professor Miller has had access to the whole, and has been courteously allowed by Mr. Spence to copy such of the drawings as he wished for the present treatise.

The observations of Mr. Spence have demonstrated the highly important and even essential character of the fibrinous exudation which takes place *external* to the canal of the artery, besides a similar effusion internally.

> "He has shown clearly that the internal clot, so far from being, as was supposed by Manec and others, essential to the separation of the ligature without hemorrhage, is not unfrequently wanting, when the vessel has been successfully tied; the closure being entirely effected in these cases by the plastic exudation between the cut edges of the internal coats, and by the bulky fibrinous mass which forms within and around the sheath. It is this external exudation which, becoming vascularized, forms the medium whereby blood is supplied from all the surrounding parts to the important new formations within the external coat of the occluded vessel; and which, by its equable pressure upon the divided ends of the internal coats, prevents the tender adhesions within the sheath from being broken up, even when there is no coagulum. And hence arises an important practical caution; that it is not only advisable, in ligature of an artery, to avoid unnecessary separation of the vessel from its sheath, but

also that every undue interference with the soft parts around is also greatly to be deprecated. According to Mr. Spence, the vessels of the new plastic lymph are formed with great rapidity. In one instance, in the dog, he found them present, in considerable numbers, sixty hours after the operation. After a longer time, vessels begin to pass even into the clot, when this is present; these vessels being always in connection with those of the sheath and external lymph, and not proceeding, as has been supposed, from the interior of the artery."—pp. 537, 538.

Very particular attention is devoted by the author to the *treatment* of aneurism; all the numerous methods are described, and a very fair appreciation is given of their respective and comparative merits. And when so much opposition has been and still continues to be made, out of Dublin, and especially, perhaps, in Edinburgh, to the treatment by *pressure*, without incision, it is very gratifying to find that the latter city is so ably represented in favour of this plan, by Professor Miller. After a pretty full statement of the advantages of, and the objections against, this mode of treatment, he says, in conclusion:—

"That pressure is to supersede ligature altogether, in the treatment of aneurism, no one can imagine. Some patients, by idiosyncrasy, may be intolerant even of such modified pressure as is required; and to some aneurisms the application of it is impracticable. There seems every reason to anticipate that the result of experience will determine, that some aneurisms are unsuited either for deligation or pressure; absolutely incurable, by reason of extreme arterial degeneration. And that, of the curable cases, some are suited for deligation, others for pressure; just as, in stone, patients are not indiscriminately subjected to lithotomy, as in former years; but, while some are cut, others have the calculus removed by lithotripsy; neither operation being exclusively followed in the practice of any wise and thoroughly accomplished surgeon. And further, it will no doubt appear that there are certain cases of aneurism, in which it were both unwise and unwarrantable to operate by the knife, when experience has shown that pressure will suffice; just as we should be culpable in removing a stone by wound of the bladder, which experience tells us may be safely crushed, or removed by the urethra entire."—p. 549.

Affections of the *Veins*, and of the *Lymphatics*, are considered in the fifteenth and sixteenth chapters respectively; and in the seventeenth, affections of the *Nerves*, including neuritis, neuralgia, and tumours of nerves.

Neuroma is described as—

"A simple tumour, and, like the painful tubercle, of the nature of fibro-cartilage; consisting of dense plastic matter lodged amongst the fibrils of the nervous tissue, which are thereby separated, and usually rendered the seat of perverted sensation. Sometimes the formation occurs spontaneously; more frequently, it follows remotely on wounds, or other external injury," &c.

Several exquisite wood engravings exhibit the appearance and minute structure of these bodies.

The *painful subcutaneous tubercle* resembles *neuroma* in structure, according to the author; though Mr. Paget has always found them to consist of *fibrous* tissue, without cartilaginous admixture. (*Paget's Lectures on Tumours.*)

The eighteenth chapter treats of *Wounds* of all kinds, their peculiar characters, and the treatment best adapted to each variety. Mr. Miller herein exhibits himself as an accomplished practitioner, no less than one thoroughly versed in the principles of the science; and this chapter, taken in connection with the *third*, "on the healing process," forms a most admirable study on this most common of all the ills to which the surgeon has to minister. The most important complications associated with wounds, viz., *Hydrophobia* and *Tetanus*, are also fully described.

The remaining chapters of the volume, on burns and scalds; the effects of cold; fracture; dislocation; sprain, and rupture of muscle and tendon; bruise; and suspended animation, though very excellent in themselves, contain nothing which demands of us especial comment; to say that they are in harmony, so far as their value is concerned, with the rest of the book, is all that is necessary.

The volume concludes with a eulogy on *Chloroform*—"Him first, Him last, Him midmost." It was originally published as introductory to the author's course of lectures, in 1848. At that time, very few unfortunate results had followed its employment as an anæsthetic agent in surgery; now, however, such instances have become, unhappily, so numerous as to have induced a salutary caution with regard to its use, at least in this country; so that our readers will require no reminder from us to the effect that this "Currus triumphalis," not "Antimonii," but Chloroformi, should be ascended with some reserve, and driven with more anxiety.

We may be expected, according to the laws of formal criticism, to pass our opinion upon the literary merits of Professor Miller's book. It is a very favourable one. His style is animated and agreeable. We cannot say that it is invariably correct or elegant; the definite article is very commonly omitted where both of these attributes require its presence. And as "the lavish and indiscriminate introduction of *commas*" was animadverted upon in a recent number of one of our most valuable British contemporary medical journals, so may Professor Miller, we think, be justly amenable to the charge of lavishly and indiscriminately employing semicolons, where simple commas would have been more grammatically proper.

We must not conclude this notice without adverting to the taste and good judgment displayed by the editor in the performance of his task. He has equally avoided the error of overloading the text with unimportant annotations and of slighting his duties. His additions are all useful, and comprise whatever new facts have been contributed, or important views have been promulgated, since the publication of the original work. His principal contributions will be found in foot-notes in the chapters on Inflammation, Suppuration, Tubercles, Cancer, Tumours, Aneurisms, and Anchylosis.

Concerning "the getting up," if we may be allowed to use so mechanical a phrase, of the American edition of this book, we cannot speak too commendatorily. It is a very jewel of its kind; the paper, the printing, and, above all, the wood-cuts, are as excellent as we could desire, and reflect the highest credit upon all who have been instrumental in the publication. We do most sincerely hope that the publishers will be amply encouraged, by the ready sale which this volume finds, to issue all their works in the same style. How infinitely more agreeable it is to read such a book as this, than those which we are commonly obliged to use!

Our pleasant task is now finished, and we take leave of our author and of our readers, assuring them that we know of no volume on the principles of surgery which can compare with Professor Miller's, in the scientific character of the doctrines which it enunciates, and the happy manner in which they are applied to the practical duties of the surgeon.

ART. XV.—*Report of the Births, Marriages, and Deaths of Massachusetts, for the year* 1850.
Eight Reports of the Births, Marriages, and Deaths of Massachusetts, for the eight years and eight months, from May 1, 1841, *to December* 31, 1849.
Two Reports of the Births, Marriages, and Deaths of the State of New York, for the years 1847 *and* 1848.
A Memorial to the Legislature of Louisiana, for the Registration of Births, Marriages, and Deaths, on behalf of the Louisiana State Medical Society.
By J. C. SIMONDS, M. D.

EVERY contribution to vital statistics is a gift to humanity. Every fact or collection of facts of this nature aids, in its degree, in the elucidation of that great subject, the value of human life, and the circumstances and causes that impair or increase it. We are thankful, therefore, for the new and ninth annual report of the births, marriages, and deaths of Massachusetts, which shows the number of, and many of the circumstances and conditions connected with, those facts as they took place in that commonwealth during the year 1850.

There are now nine of these reports from Massachusetts before the public. They cover a period of nine years and eight months, from May 1, 1841, to December 31, 1850. And we have the promise of another, the tenth, for 1851, as soon as the returns from the several cities and towns can be condensed and digested into due form in the office of the Secretary of State. The people and the government of that State having entered upon this path of vital registration, and persevered so long in its course, with improving efforts and results, there is no reason to apprehend any faltering or failure. We may, therefore, confidently look for these annuals in future years.

This system of registration, as applied to States, is almost new in this country. It has been in operation for some years in some of the European nations. It was first established in England and Wales in July, 1837. The government then and since caused the births, marriages, and deaths to be registered in all the parishes and districts of the kingdom, and the whole is annually gathered and condensed and published in a large octavo volume.

The English reports are of great value; besides the registry of the great facts of life, they contain the localities, dates, and circumstances of these events; the causes of death; dissertations upon sanitary subjects, the prevalence and the severity of various diseases, the value of life in various conditions, and upon life insurance. Hence these volumes of English mortality have a value beyond the mere history of the facts which they record.

In America, we have hardly made an approach to the fulness and completeness of the English system. Our reports consist mainly of the three great facts of life—birth, marriage, and death. With the exception of a valuable letter of Mr. Shattuck in the fourth report, and some excellent observations of Dr. Curtis in the eighth report, there are no dissertations on life and death, the conditions that affect the force of mortality, or upon the progress of population, in any of the series of the reports of Massachusetts.

The reports of the State of New York, although valuable in themselves and useful as far as they go, are still more meagre than those of Massachusetts. They were published for only two years, 1847 and 1848. Since then, they have been discontinued. This is a matter deeply to be regretted, for there was much to be hoped from these sanitary and mortuary registers of the great

State of New York, and from the influence of her example upon other States. It was a natural and a reasonable expectation, that New York would give to the world as much light upon these matters, from the record of her own experience, as she has upon education, crime, agriculture, and natural history, in her large and instructive reports upon these subjects.

In Pennsylvania, the movement has already been begun. A law requiring the registration of births, marriages, and deaths has been enacted, which, although it falls short of what is desirable, yet is a very satisfactory beginning, and we trust a foretaste of much that is to come.

The Louisiana State Medical Society, and the Physico-Medical Society of New Orleans have petitioned the Legislature of that State to establish a system of registration of births, marriages, and deaths in Louisiana. The memorial was prepared by Dr. J. C. Simonds, of New Orleans, an able and earnest advocate of this measure, and from the clearness of the argument, and the satisfactory nature of the reasons set forth, we believe the petition will be granted.

In some other States, the friends of this system are striving to awaken public attention to it, in the hope of ultimately procuring its adoption by their several legislatures.

Several cities have made and published their records of these great events of life in various degrees of fulness Some have given merely the numbers of those who were born, and married, and died. Some others have added the dates of all these events, the causes of death, the ages and sexes of the deceased, and other particulars of great value. We have these annual reports from New Orleans, Charleston, Washington, Baltimore, Philadelphia, New York, Providence, Boston, and Lowell. They differ widely in their character and completeness, and most of them grow better and more satisfactory with increasing experience. The annual reports of Philadelphia, always meagre, have not latterly been regularly published since the year 1846. Those for the years 1847, 1848, and 1849 have been issued only within a few weeks, and we are still without those for 1850 and 1851.

Our present purpose is not to notice the reports of these cities, but to analyze those of Massachusetts and the State of New York.

The earlier reports of Massachusetts and those of New York are very incomplete. This was expected. It was so in England. It requires the cooperation of a great many officers, and of almost all the people, to produce full and correct returns. No central office, however well organized or powerful, no officers, however intelligent and efficient, can collect the births, marriages, and deaths alone, from any State or nation. There must be numerous agents or officers distributed for this purpose in all the districts and localities. Besides this, they must receive the active aid of some member of, or some person familiar with, every family in which either of these events takes place.

It is not to be supposed, that the whole people will, at once, and immediately after the enactment of any registration law, yield to it full and active obedience. We consequently find, in the earlier reports of England and Massachusetts, and in those of New York, from the officers that have charge of them, complaints of the entire neglect of many towns, and of the manifestly imperfect returns of some others.

In Massachusetts, there were thirty-five towns out of three hundred and five in the State, containing 76,654 inhabitants, that made no returns in 1842, the first year that they were required. Eight other towns, containing 18,183 inhabitants, made no return of deaths. Twenty-six towns, containing 83,092 inhabitants, returned no births. Three of the smallest towns in the State, with a total population of only 951, reported no marriages in that year.

The returns from many other towns were evidently incomplete. The clerks of some of them seemed to have returned to the Secretary of State only such of these facts as happened by accident or otherwise, to come to their knowledge. They had taken no pains to obtain them, and had put in operation no active inquiry.

The consequence was, that there were returned in that year, 1842, and published in the first report, only 8741 births, 5742 marriages, and 9544 deaths, in a population of 737,326.

In the next year, only thirteen towns failed entirely of this duty; all the rest reported an increase of births, marriages, and deaths. From that time, there has been a gradually increasing attention to the requirements of the law until 1850, when reports were received from every city and every town in the State but eight, which contained 19,087 inhabitants. The returns last received bear evidence of much more accuracy and completeness; and probably most of them contain all of those events that occurred in the cities and towns. This ninth report stated that there were 27,664 births, 10,345 marriages, and 16,606 deaths, among 975,578 people in 1850.

The two reports from New York bear the same evidence of incompleteness. The Secretary of State says, in his first report, that he had received returns from the clerks of all the counties but Washington. But there were one hundred and ninety-nine towns that made no returns to the county clerks. Only one city, New York, made these returns. Some other towns reported only the marriages, some only the births, and some only the deaths, and some others reported two of these classes of facts. A considerable proportion of those which were received, plainly included only a part of the facts. Copake, with 1607 inhabitants, in 1840, reported 3 marriages and 56 births in 1847. Ephratah, with 2085 inhabitants, reported 3 marriages and 73 births. Scipio reported 3 deaths in 2136 inhabitants. Chester reported 8 births, 5 marriages, and 4 deaths among 1744 people. New Windsor reported 20 births, 1 marriage, and 12 deaths, in a population of 2474.

This first report stated that there were 35,897 births, 11,437 marriages, and 17,263 deaths, in the year 1847, in the towns and cities which had made returns.

The second report, that for 1848, showed a little improvement. Returns were received from all the counties but Clinton and New York. Two hundred and twenty-five towns and seven cities failed to make returns. The others reported 33,621 births, 11,582 marriages, and 18,578 deaths.

Here was a deficiency of twenty-six towns and seven cities, including New York, which had made returns in the previous year. Here was also a decrease of report of 2275 births, but an increase of 155 marriages and 1315 deaths. As the decrease of reported births was in a smaller ratio than the decrease of reporting towns, and as there was an increased report of the other parts, it is reasonable to suppose that there was a greater fulness and accuracy in those returns that were made, and that the tables showed more truly the ratio of births, marriages, and deaths, to the living, in 1848, than in 1847. There might have been some special reasons for the entire neglect of the failing cities and towns. But it is apparent, that the officers of the other cities and towns made more effort to obtain all the facts, and return them to the Secretary of State.

These are all the reports that have yet been made by the State of New York. What progress or improvement will be made in the succeeding reports, if they ever appear, is yet to be seen.

These eleven reports of Massachusetts and New York are all that have yet been made to the public by any State or national authority in respect to the great facts of life and mortality in America.

The English registration system met with similar imperfect success in its early years, and fell short of the ideals which the law had marked out. But as in Massachusetts the returns became more and more complete, until now they seem to contain all the facts required. The first report for 1837–8 included 399,712 births, 111,481 marriages, and 335,956 deaths. The fifth report included 512,158 births, 122,496 marriages, and 343,847 deaths. The twelfth report included 578,159 births, 141,833 marriages, and 440,853 deaths in 1849.

This progress from deficiency and incompleteness to fulness and completeness is what must be expected here and everywhere. All systems of this nature must pass through the same probation of ill success and improvement before they can gather and give to the world such a complete set of facts as may be received as the basis of all desirable calculations upon population and mortality, and especially such as will afford unquestionable ground for comparison of one State or nation with another in respect to these matters.

This imperfectness in these reports is frequently used as a charge against them, and a valid objection to the whole system of registration. On this ground the opponents of such a law resist it before it is established, and its enemies find reasons therein to attempt its overthrow after it has begun its operations. Without doubt, the friends of the system sometimes claim too much for it. They present their few facts in such a way, and draw such inferences from them as are not justified by statistical science.

It would be unphilosophical to compare the rate of mortality of New York and Massachusetts or England on the basis of the reports we have of the former State or of the earlier reports of the latter. The average number of deaths in New York in the reported years, compared with the population of the whole State, gives a mortality of 1 in 145 inhabitants. Or, if we compare the deaths with the population of the towns reported, we must still include many such towns as Summit, which reports a mortality of 1 in 393, and Waterloo, whose mortality is reported to be only 1 in 726 of the living, and others of a higher ratio, but still falling short of the probable facts.

A similar difficulty would be found in the early reports of Massachusetts, which in the first two years reported a rate of mortality of 1 in 72 of the living in the whole State. If we omit the towns that made no report, we must still include such towns as Seekonk, which returned 1 death in 1996, and Attleboro, which reported 1 in 3585 of its people. The rate of mortality should not be attempted to be deduced from these returns until the system shall be so completely established as to insure the report of all the deaths among any definite number of people.

There are other facts of great value that may be established by this system of registration, although the returns may be incomplete as to number.

It is important as a matter of political economy to have such public and permanent records concerning every individual, that he may be able to establish his identity, his personality, and his relation to others; and also that the public authorities may be able to describe and to trace him.

Therefore, the great facts of his being, his birth, marriage, and death, should be put on record with as many circumstances respecting him and these events as will show beyond doubt his origin and connection. The first record, that of birth, should contain the date and place of the event, the name and sex of the child, the names of both parents, the occupation of the father. The second, that of marriage, should show the names, birth-place, ages, residence, parentage of both parties, the occupation of the husband, the date and place of the ceremony, the name of the person by whom it was performed, and whether this be the first or any subsequent marriage of either party. The final record, that of death, should show the date, place, and cause of death, the sex, age, occupation, and civil condition of the deceased, and where the interment took place.

These are the primary facts which should be registered and returned to the State or national authority. Then they can be so arranged and combined as to admit of a great variety of deductions very important to humanity.

The value or the expectation of life may be determined or rather approximated by these facts. The average duration of life in any place or among any people is modified by many other facts and circumstances, and mostly by the composition of the population. Thus, if a town or State be new, and composed mostly of youth and young families, the bills of mortality will be filled mostly with persons in the early periods of life. The average longevity of those who die in such a community would of course be less than in an older State, which included a due proportion of persons in the older and more advanced periods of life. In a stationary population, where none come in except by birth, and none go out except by death, and where it has been so during the period of the longest possible life, this average longevity of the deceased is a fair criterion of the chance of one's existence there. But in proportion as immigration brings any in, and increases the ratio of any class, or as an emigration carries any out and diminishes the proportion of any class, this average is lower or higher according to the kind and degree of the disturbing element.

Nevertheless, imperfect as may be the deductions made from these data, they are still of value, and in the hands of cautious reasoners they will be of great service. Therefore, we need to have the precise age of each deceased individual stated, and the whole presented in tables and classes of very small periods.

A table containing the ages in classes connected with the causes of death shows at what period of life certain diseases are fatal or otherwise.

A table showing the ages in classes connected with the counties, towns, or other localities shows with what different degrees the local morbific and fatal influences press upon human life at the various periods of existence. It is an admitted and perhaps an established fact that residence in a compact city is less favourable to infant life than a residence in the open country. Massachusetts seems to be more favourable to the developing and forming periods of life under 20 years than England, Denmark, and some other countries of Europe; but on the other hand, it seems to be less favourable to life during the period of action and responsibility from 20 to 60 years than those other nations. Differences of this nature between localities, districts, and countries of different character might be shown by an extended and complete arrangement of the bills of mortality according to this plan.

The ages connected with diseases show how far the causes of death affect the various periods of life. Thus, convulsions and hydrocephalus prevail mostly in childhood; consumption in the third and fourth decade of life; and apoplexy and palsy in the later periods. Many other and important principles of this nature might be elicited and established by this arrangement.

A table, combining age, locality, and disease, would show whether the causes of death have the same influence in various places. Dysentery may be more fatal to childhood in one place, and to adults in another.

Combining disease with occupation shows whether the former have any connection with the latter, and to what extent. Age with occupation shows whether the circumstances or the exposures of one are more injurious to life than those of another.

The date of death standing alone is important as showing the effect of the seasons upon life; connected with the age, it shows the effect of the season upon the different periods, as the warm season is usually more fatal to infancy, and the cold season to old age. The date connected with disease shows when the different maladies prevail; as diseases of the digestive organs are commonly more prevalent in the summer and early autumn, and pulmonary diseases in the winter and early spring. The date in connection with locality shows the effect of season on various places; as the summer may be more unfavourable to the city, and the winter to the country.

The sexes should be exhibited in all these various combinations to show the influence of age, locality, disease, and season upon males and females.

The localities should be as small as the divisions of the country will admit. It is not enough that these facts should be given in counties, but they should be given in towns and if possible in smaller districts, in order to define with the utmost exactness the degree and kind of local influences. If the diseases, &c., of Massachusetts and New York were stated as they are in England in towns, it would be easy to group all the mountainous towns into one class, and all those in dry plains in another, and all those in swampy and marshy districts or along the low borders of sluggish rivers in another, and those on the sea-coast in still another; and thus the local influences could be determined. Some of the counties in these States include several or all of these varieties of country. The County of Middlesex in Massachusetts extends from the sea-coast on the east more than forty-five miles westward to the almost mountain region of the interior.

In order to present the results at one view, all the localities should be grouped and arranged in classes according to their natural and artificial affinities. Those on the sea-coast should be in one class, those in the interior in another, those in the mountainous regions, those along the low banks of sluggish rivers, exposed to bogs, and perhaps to miasmata, those on the level and dry plains, the compact cities and towns, and the sparse rural districts, the manufacturing and the commercial districts, all these should be arranged in distinct classes, and then the various circumstances and combinations of circumstances, as age, disease, season, sex, &c., stated in connection with them.

These tables would show whether there ~~are any, and how great may be the~~ difference of the morbific influence in these several classes of localities, and lead to the investigation of the nature and character of these influences or causes of disease. The fact that a definite disease exists or prevails in one district, or in one range of circumstances, and not in another, justifies the necessary inference that the cause of disease exists in the former, and not in the latter, yet it does not explain what that cause may be. This is a matter of further inquiry. But this may be limited to the conditions or circumstances or habits that are to be found in the locality where the disease prevails, and not in the other where it was not.

The excess of mortality from typhus fever, cholera, and dysentery, in the narrow lanes, closed courts, and crowded dwellings of some of the poor in Liverpool, London, and other cities of Great Britain and elsewhere, led to the examination of those localities and dwellings, and revealed their foul air laden with animal exhalations, the absence of household and personal cleanliness, and the privation of comforts which the occupants endured. These being found almost universally in such places, and these malignant and virulent diseases of depression being found more there than in the broad, open, and clean streets, and the airy and comfortable dwellings that border upon them, lead to the natural supposition that these are the causes of this class of disease.

The large excess of mortality from consumption among females over that among males, opens to the inquiry whether the female organization renders women more susceptible of this disease than men, or whether the female costume that covers the neck and chest less, or her habits of in-door life or want of frequent and vigorous exercise, expose her more than the male to this malady.

If we could obtain a registry of mortality from consumption in countries where the habits of the two sexes, in regard to occupation and labour, are nearly alike, and women work with the men in the field, this would determine the influence of one of the circumstances, and show whether in-door life and comparatively inactive habits have any influence in producing this disease. If in such a country there should be found as great a disproportion of phthisis in the two sexes as here where their habits differ so widely, it would lead to the conclusion that these habits had no such injurious influence as is here supposed. But if it should be found that in those countries where women laboured abroad like men, they had no more consumption than their brethren, it would be reasonably concluded that the in-door and quiet life in other places opened the way to the attack of this disorder.

Much light might be derived from a registration of mortality and its causes among the field slaves of the South, where the employments and habits of the sexes are very nearly alike.

These facts increase in value with their increasing numbers. The greater the number of cases presented in which certain facts are associated with or follow certain conditions, the more true is the deduction that these facts belong to or grow out of those conditions, and that the one is the cause and the other the consequence. We need, therefore, not only the record of the mortality and the attendant conditions and circumstances from a single district and for a single year, but we want this to cover as many districts and include as many people as possible, and also that the experience and observations of each successive year should be added to those of all preceding years.

When the groups or classes include only a few facts, the deductions from one may differ very much from those drawn from another. Thus in the Mas~~sachusetts reports, the tables of the average~~ longevity of persons engaged in various occupations, show a great and enormous difference, in different years, in some occupations which include but few; but in those occupations which include many, there is nearly the same average from year to year.

Having thus stated what is desirable in these registration reports, it is worth while to examine those already published, and see what they have done and how near they come to the proposed ideal.

The primary facts from the districts and towns required by the law and gathered by the clerks, are nearly the same in both Massachusetts and New York, and through all the years in which they were obtained. But there may be a great difference in the manner in which these original facts are digested and presented to the world. There is a great variety of ways in which they may be arranged and combined, and in the deductions that may be made from them. This work of preparation should then be entrusted to such persons as thoroughly understand and appreciate this branch of vital and statistical science; such as can add experience in this matter to a careful study of its means and objects. A suitable person, having a clear conception of what should be done with, and what advantages may be derived from, these facts, would begin with a well-digested and comprehensive plan, and carry it out from year to year, and thus annually add new value and new strength to the principles that may have been set forth and established. The registration officer should, therefore, be selected as a judge or a professor, for his peculiar fitness for the office, and his term of office should be secure from all change, because every year's experience makes him more valuable.

Unfortunately, neither in Massachusetts nor in New York is a special officer appointed for this purpose; but in both it is left in the hands of the Secretary of State, whose office is a political one, and liable to be changed with the success or defeat of political parties.

The nine reports of Massachusetts have been prepared and published under the direction of four different secretaries, and as this officer is necessarily overburdened with the duties required of him by the law and custom, he is obliged to delegate this work of digesting the returns of births, marriages, and deaths, to some subordinate officer or agent. These nine reports have been prepared by almost as many hands; consequently, they differ in their character and purpose. No two of them are alike. No single plan has been adopted and carried through all. Each one of the reports is valuable in itself; but they, collectively, do not form one whole. Each successive report is not made more valuable than its predecessor by including the sum of all previous facts and observations, and thereby strengthening its own deductions. Although these reports have a general similarity, and a seeming sameness of purpose, and satisfy the wants of most persons, especially those who look at them only to learn the bare facts of the year reported, yet those who desire to learn from them the permanence or change of facts, to draw safe deductions, and establish principles on the broadest foundation, are disappointed.

The population, births, marriages, and deaths of Massachusetts, in each town and county, during the year reported, is stated, in one table, in all the reports but the third.

The population and births, population and marriages, and population and deaths, in each town and county, are stated in three separate tables in the third report.

The same table includes the births, marriages, and deaths, during each of the two previous years, separately, in the fifth, sixth, seventh, and that part of the eighth report that includes these events during the eight months next succeeding May 1st, of 1848. In the fourth report the table includes these facts during the three previous years. But this mention of the facts is omitted in that part of the eighth report that includes the events of 1849, and in the ninth report.

The births in each town and in each month are stated in the third report.

The births and sexes in each county are stated in the third and all subsequent reports. The same is stated in regard to each town in the third.

The plurality cases of birth, with the sexes in each county, are stated in the third.

The same facts in each month are in the fourth and all subsequent reports.

The third report informs us how many children were born whose fathers' occupation was reported to the Secretary of State. But this is all. We are only told how much the Secretary knows, and how faithful the people have been in instructing him. But what he knows, what his facts are, we are not informed. It might be desirable to know what proportion of the births was in families of the various social conditions, and engaged in the various occupations.

The marriages in counties and months, and the previous condition of each party, whether single or widowed, is stated in the third and all subsequent reports.

The ages of the marrying parties, in classes, are in the fourth and all following reports.

The average age of the marrying parties in each condition of first, second, or third marriage, is in the third report.

The nativity of the marrying parties in each town, whether native or foreign, is stated in that part of the eighth report that relates to 1849, and in the ninth relating to 1850.

In none of these reports are the facts of the preceding years brought together to show, at one view, the proportion of first, second, and third marriages of each sex, in different months, at the various ages, or in the different counties.

The same variance of plan and execution, the inclusion of some facts in some years, and their omission in other years, is shown in the reports of the deaths.

The population and mortality is given, for each town, in all the reports.

The deaths, in each of the two previous years, are stated in the third, fifth, sixth, and seventh reports, and those of the three previous years are in the fourth.

In all these five reports these facts are stated separately for each year. But in the report for 1848, the deaths, in the three years, are stated in the aggregate, and the average for each year is shown. And in the reports for 1849 and 1850, no mention is made of the mortality of the previous years.

The ratio of mortality to the living in each county, and also in two divisions of eastern and western counties, for 1849, is stated in the eighth report.

The sexes of the deceased, in each town and county, for the years 1848, 1849, and 1850, separately, are stated in the eighth and ninth reports.

The sexes of the deceased, in each month and each county, are stated in the third, eighth, and ninth reports.

The ages in classes, in respect to counties, are in the second, third, and fourth reports.

The ages, in respect to diseases, are in all the reports.

The diseases, in respect to counties, in respect to months, and in respect to ages, are in all the reports; but they are stated as separate facts.

The diseases, in respect to sexes, are stated in the fourth and following reports.

The diseases in respect to birth-place, whether native or foreign, are in the fourth, fifth, sixth, and seventh reports.

The diseases in city and in country are shown, for the year 1849, in the eighth report.

The whole number of deaths from each disease, and the proportion of those from each disease to the total deaths, in the year 1849, in the eight months of 1848, and during the seven previous years, are stated separately in the eighth report. Similar statements for 1850, 1849, and the seven preceding years, are in the ninth report, and for three years separately, in the fourth, fifth, sixth, and seventh reports.

The average age of the deceased, for the reported year, is stated, in respect to towns, in the third, eighth, and ninth reports, and in respect to counties and the State in the third, fourth, eighth, and ninth reports. And also the average longevity of the married and of the unmarried, who were over twenty years old, is in the fourth, fifth, sixth, and seventh reports. The average longevity, in some towns in America, and England, and Genoa, including a series of years, is in the fourth report.

The average age of males over 20, in the several occupations, is in all the reports for each year. That of females, in some occupations, is in the fourth and following reports.

The same is stated for the two preceding years, separately, in the fourth, fifth, sixth, and seventh reports. This average for the year 1849, and the eight months of 1848, in one column, and for the five preceding years in another column, is stated in the eighth report. It is stated, for the year 1850, in one column, and for the preceding six years and eight months, in another column, in the ninth report.

Dr. Josiah Curtis, of Boston, to whom, fortunately, the preparation of the eighth report was committed, added to that several valuable tables, showing, among other things,

The number and proportion of native and foreign population in Massachusetts, at the three several censuses of 1830, 1840, and 1850.

The number and proportion of natives and foreigners, the population to the square mile, the dwellings, and barns, in 1850; the number and ratio of births, marriages, and deaths, to the living, in 1849, in each county.

The number of births, of foreign and native parentage, in the cities and large towns, and in the rural districts; and also the number and average age of persons dying in the same in 1849.

Comparative ratio of male and female births in the eastern or sea-coast counties, and in the interior, in the cities and in the country.

Number and sex of persons dying of consumption and of dysentery in each month.

Number and proportion of deaths of each sex, at the several periods of life, in the city and in the country.

Thus we see that these nine reports of Massachusetts afford a great amount of facts, and ground for many deductions as to the progress of population and mortality.

And yet, though so much is done, there is much more to be desired. There was no clear and definite plan in the beginning; none which, being once adopted at any time, has been carried out through all the subsequent reports, adding the experience of each year to the gathered experience of the preceding years. Each successive officer seems to have arranged the work according to his own notions, and made such exhibitions of the facts that were received, and drawn such deductions from them as seemed to him, at the time, most important, without regard to the plan and the work of his predecessors.

Consequently, although, from the returns made to the Secretary of State, sixty-five facts or combinations of facts and deductions are stated in one or more of the reports, and might have been advantageously stated in all, only seventeen of these are presented in all the reports. Of the others, some are given in only one, some in only two or three reports; some are presented, then omitted and presented again; and others are brought out in the third or later ~~report, and continued in all that follow afterwards.~~

In regard to none is the sum of the observations of the previous years added to those of the reported year, and the deductions drawn, and the principles established, from the largest amount of data. This is singularly shown in the tables of longevity, both of the whole number of persons dying and of those in the several occupations. The statement of the average duration of life is valuable as a reliable principle only when it is taken from a large number of persons, and the more the facts are multiplied, the more nearly does their average approximate the truth, and increase the value of the deductions drawn from them.

It would seem, therefore, to be the most reasonable plan to include, in this calculation of the longevity of the deceased, in any state, county, town, or class, all who had been known to have died in the places or conditions under consideration. But, in the first seven reports, only the facts, the number of deaths, and the average age of the deceased in the various occupations, in a single year, are presented as the basis of calculation.

In the fourth report, these facts for 1845, and also for 1844, 1843, and 1842, are stated in four separate columns. In the fifth, sixth, and seventh reports, the same facts for the reported years, and for each of the two preceding years, in three separate columns, are stated.

In the eighth report, the deaths, during the twenty reported months, in the several occupations, are included in one sum and column of sums, and those during the five previous years in another sum and column of sums, and the average drawn from these separately. In the ninth report, these facts are stated, and averages drawn from the facts of 1850, and of the previous six years and eight months, in two separate columns. In neither of these reports is the whole sum of the facts added, and the average drawn from this the widest field of observation.

Where the observations are few, in each year, their averages differ. Thus, the longevity of the furnace men is stated to be 22 years in 1846, and 63.75 years in 1847. That of gunsmiths was 30 years in 1844, and 80 years in 1846. That of bookbinders was 29 years in 1845, and 66 years in 1848. These are extreme specimens; but they show the error of taking averages from a small number of facts. But, in some other occupations which include large numbers of deaths, the average approaches a similarity that indicates the value of the inference. Thus, the agriculturists, farmers, and gardeners, whose deaths, during the nine years and eight months reported, were 7150, averaging 735 a year, had an average longevity of 66, 66, 64.02, 61.64, 61.64, 66.63, 65.41, 62.39, and 65.93 years. The 1008 carpenters who had died during these successive years had an average longevity of 62, 48, 51.52, 52.26, 48.94, 48.01, 47.56, 48.94, and 49.61 years.

The two reports which we have from New York are for the years 1847 and 1848. Since the last date no returns have been made to the Secretary of State, and of course no report has been published. The law is not repealed, but it is inactive. It had not time during its two years of operation to take such hold upon the people as would convince them of its usefulness.

These two reports are the same for both years. They present the same facts, the same tables, and the same deductions. There are five tables.

The first includes the population, births, marriages, and deaths, in each town and county.

The second states the births, in each county, 1st, in each month; 2d, the sexes and colour of each sex; and 3d, the number of illegitimate.

The third shows the marriages in each county. 1st, as to months; 2d, as to color and sex; 3d, the approximate ages of each sex.

The fourth shows the deaths in each county. 1st, as to months; 2d, as to colour of each sex; 3d, the married and unmarried of each sex; 4th, number in each profession, and average age in each profession in the whole State.

The fifth states the deaths, 1st, diseases, ages, and sexes; 2d, diseases, month, and sex; 3d, diseases, nativity, and sex.

The plan of the first report is carried out in the second. But each one stands alone. In the second, no reference is made to the first. The average

age of the last is based solely upon the experience of that year; and no opportunity is there offered for comparing the facts and experience of 1848 with those of the previous year.

The ninth report of Massachusetts is more full than any of its predecessors. It is so complete that the secretary enters into the calculation of the ratio of births, marriages, and deaths, to the whole living population. In 1850 there were 27,664 births, 10,345 marriages, and 16,606 deaths, in all the cities and all the towns but eight, the whole containing a population of 975,578. Calculating the ratio in the eight unreported towns by the ratio of the other rural districts, there were in the whole State 28,172 births, 10,538 marriages, and 16,901 deaths in the year 1850. This was one birth in 35.31, one marriage in 94.52, and one death in 58.85 of the living.

The rate of mortality in the city of Boston was one in 37.32; in the rest of the State, one in 64.81. In the cities of Boston, Lowell, Cambridge, Charleston, and Roxbury, this rate was one in 42.74; in the rest of the State, one in 65.41.

The mortality was more in 1849, being 20,423, or one in 45.58 of the calculated population.

The mortality was at an earlier age generally in 1849 than in 1850. Of all the deceased, 39 per cent. were under 5 years of age, 50 per. cent. under 20, and 16 per cent. over 60, in 1849. And 37 per cent. were under 5 years, 47 per cent. under twenty, and 18 per cent. were over 60 years of age in 1850. The average longevity was 26.19 years in 1849, and 27.67 in 1850.

The cholera, dysentery, and other diseases of the digestive organs prevailed in 1849 more than in other years. In that year 1188 died of the cholera, 360 of cholera infantum, 2455 of dysentery, and 209 of diarrhœa, making 4063 of these diseases, and about 20 per cent. of all from known causes. The mortality from all diseases of the digestive organs was 6,143 or 30 per cent. of all.

In 1850, the deaths from cholera were 65; cholera infantum, 252; dysentery, 1188; diarrhœa, 172; in all 1677; and 11 per cent. of all from known causes. The total mortality from diseases of the digestive organs was 3,438, or 21.88 per cent. of all.

The mortality from the zymotic diseases, including the endemic, epidemic of contagious disorders, was 7,520, or 38 per cent. of all from known causes in 1849, and 4,357, or 27 per cent. of all in 1850.

The mortality from pulmonary diseases was about the same in both years, being in 1849, from consumption, 3606; pneumonia, 815; other diseases of the lungs, 759; in all, 5,180. In 1850, the deaths were, from consumption, 3,257; pneumonia, 838; other diseases of the lungs, 832; total, 5,297. It is manifest that the deaths from this class of causes have a much larger proportion to the whole mortality in 1850 than in 1849; being of consumption, 22 per cent. in 1850, and 17 per cent. in 1849; and of all 32 per cent. in 1850, and 25 per cent. in 1849. Compared with the whole population, from which returns were made, the deaths were from diseases of the digestive organs, one in 151 in 1849, and one in 183 in 1850; from diseases of the lungs, one in 179 in 1849, and one in 184 in 1850. The mortality from the zymotic class was 7,520, or one in 123, of the people in 1849, and 4,357, or one in 224 in 1850.

Locality.—The effect of locality, or the power of local influences may be traced to a certain degree in these reports. Massachusetts covers but a small extent of territory, but there are marked differences in its character. Its length from the sea-coast westward to the line of New York is only about two hundred miles. The country near the Atlantic is low and level through Barnstable, Plymouth, Bristol, Nantucket, and Dukes Counties, and hilly but not high, through Norfolk and Essex Counties. The interior is higher and more hilly, and some of it, especially the region west of the Connecticut River, is mountainous. The eastern division is exposed to the east winds, which are chilly and oppressive to those who are subject to pulmonary diseases. The western division is more out of the reach of these winds, and mostly protected from them by the high lands of Worcester County, which run through the State from New Hampshire to Connecticut.

The eastern counties contain many large towns and some cities; and the population of the whole is much more dense than that of the western counties. A large proportion of the inhabitants of the eastern sections are engaged in trade, commerce, and manufactures; while those of the western sections are principally employed in agriculture. The seven Atlantic counties, Essex, Norfolk, Plymouth, Barnstable, Bristol, Dukes, and Nantucket contained in 1850 a population of 390,579, and 164 to the square mile. The five interior counties, Worcester, Franklin, Hampshire, Hampden, and Berkshire, contained 294,308 inhabitants, and 60 to the square mile. Boston has 136,884 people. Middlesex County, with 161,385 inhabitants, includes the cities of Cambridge and Charlestown, and some large towns bordering on the bays and the sea-coast, and also a wide agricultural territory extending to the highlands in the interior. This county, therefore, belongs exclusively to neither of the divisions herein described.

The returns of the deaths, for the years 1849 and 1850, are sufficiently complete to justify a calculation of the rate of mortality in the towns that were reported. Taking the average of those two years, and comparing this with the average calculated and enumerated population, we have the facts of the deductions in the following table:—

Average Annual Mortality in Massachusetts in the years 1849 *and* 1850.

	INTERIOR COUNTIES.		SEA-COAST COUNTIES.		CITY OF BOSTON.	
Average population for 1849 and 1850	284,663		371,885		134,819	
	Mortality.		Mortality.		Mortality.	
Causes of death.	No. of deaths.	In 10,000 living.	No. of deaths.	In 10,000 living.	No. of deaths.	In 10,000 living.
All causes	5113	179	6194	152	4373	324
Zymotic diseases	1754	61.6	1759	47	1666	123
Diseases of digestive organs	1255	44	1177	31	1078	79.9
Diseases of respiratory organs	1420	51	1928	51	1088	80.7
Consumption	1003	35	1415	38	615	45

It appears from these facts that the rural districts, near the seacoast, were more favourable to life, during these two years, than the interior. But the rate of mortality, and especially from diseases of the zymotic class and of the organs of digestion, in the city of Boston, was more than twice as large as that of the other Atlantic districts. The mortality from endemic, epidemic and contagious diseases, and from all diseases of the digestive organs, was more in the interior than on the sea-board. Consumption was somewhat more fatal on the sea-coast than in the counties distant from the ocean, and considerably more prevalent in the city than in the country.

The average longevity appears to have been nearly the same on the sea-coast and in the interior. The average age for each county is stated in the reports for the years 1843, 1849, and 1850, and the periods within which the deaths took place in the several counties are given in the reports for 1841 and 1842. From these last, the average age can be calculated. Hence we obtain the number of deaths, and the average longevity in the different districts of the State, as in the following table. The numbers in regard to Boston are taken and calculated in part from the city bills of mortality, and include nine years from 1842 to 1850.

Mortality of Average Longevity in Massachusetts.

	Number of Deaths.	Average Longevity.
Seven Atlantic counties, five years . . .	22,419	31.8
Five interior counties, five years	18,397	32.13
Boston, nine years	27,545	21.27
Middlesex, five years	9,766	27.13

By this, we see that there was, during these periods, but little difference in longevity produced by the exposure to, and protection from, the atmosphere of the ocean. But there is in this respect a very marked difference between the city and the rural districts, whether on the sea-board or in the interior. The longevity was fifty per cent. greater in the country than in Boston. Middlesex County, which includes the cities of Lowell, Charlestown, and Cambridge, as well as its open districts, shows an average longevity approaching a medium between the others. Probably a part of this difference is due to the fact that Boston and Middlesex have both grown much more rapidly, within the last ten years, than the rest of the State. They have, therefore, among their population a larger proportion of the middle-aged, the young, and children, whose natural and necessary mortality would diminish the average longevity of the whole. They have also a large, and Boston a very large foreign population, mostly Irish, whose early marriages and numerous births increase the subjects of early death, and diminish still farther this apparent longevity of the whole people.

Influence of Seasons.—The influence of the seasons, the cold and the warm, is observable in these registers, in respect to the mortality from diseases of the digestive and the respiratory organs. This is more marked in regard to the former than in regard to the latter.

In the warm season, from May to October, inclusive, the deaths, from all diseases of the digestive organs, were, in Massachusetts, during the nine entire registered years, 18,831; in New York, during 1847, 1848, they were 3793; and, in both of these States, 22,624. During the cold seasons, from November to April, inclusive, the deaths from these causes were, in Massachusetts, 5,105; in New York, 905; and in both, 6010.

There was much diversity in the proportions of mortality in winter and in summer, from the various diseases of this class. The greatest difference was in regard to dysentery, from which 9515 died in the warmer, and 715 in the colder months. There was nearly the same disproportion of deaths from cholera and cholera infantum, being 3592 in summer, and 263 in winter. The mortality from diarrhœa and bowel-complaints had a similar, though a smaller disproportion as to seasons. On the contrary, there were more deaths from colic, dyspepsia, organic diseases of the stomach, worms, and diseases of the liver in the cold than in the warmer parts of the years.

The mortality from diseases of the respiratory organs was greater in winter than in the summer, being 14,744 in Massachusetts, 4605 in New York, and 19,349 in both, during the six months, from May to October; and 16,285 in Massachusetts, 5151 in New York, and 21,436 in both, during the six months from November to April.

The greatest difference was in the mortality from pneumonia, being 3770 in winter, and 1794 in summer; and from croup, which was 2028 in the cold, and 1251 in the warm season. The deaths from pleurisy, bronchitis, and influenza, were more in the winter than in the summer. But the other diseases of this class, consumption, hooping-cough, catarrh, and hydrothorax, were somewhat more fatal in the warm than the cold season. The mortality from consumption, during the six warmer months, was, in Massachusetts, 11,462; in New York, 3271, and in both, 14,733; and during the six colder months, in Massachusetts, 10,597; in New York, 3278, and in both, 13,875. Hooping-cough destroyed 810 in the warm season, and 543 in the cold. These are important matters, and deserve a farther investigation, to see how far these diseases are influenced by the seasons. These facts from Massachusetts and New York lead to the suspicion, at least, that winter is no more fatal to consumptive patients than summer. In London, during three years, the deaths from consumption were, in the first and last quarters, October to March, 10,748; and, in the second and third quarters, from April to September, 11,271.

The proportion of mortality from various causes to the whole population cannot be determined here for want of complete returns from those States and towns which are reported. But the ratio of effect of these causes to each other can be shown, and it will be seen that they differ in different places and countries.

Distribution of Mortality from various Causes.

CAUSES.	MASSACHUSETTS. Nine years and eight months.		NEW YORK. Two years, 1847 and 1848.		ENGLAND & WALES. Five years, 1838 to 1842.	
	Deaths.	Ratio.	Deaths.	Ratio.	Deaths.	Ratio.
All specified diseases	92,984	10,000	29,449	10,000	1,692,251	10,000
Zymotic	27,415	2,948	9,316	3,159	336,727	1,989
Uncertain seat	11,281	1,213	2,701	919	236,259	1,396
Nervous organs	8,736	939	3,118	1,059	249,905	1,476
Respiratory organs	26.226	2,820	8,516	2,893	459,472	2,715
Circulative "	1,825	196	433	147	21,191	125
Digestive "	5,740	617	1,733	588	108.583	641
Urinative "	386	41	108	36	8,398	49
Generative "	1,094	117	210	71	17,193	101
Locomotive "	466	50	187	63	10.850	64
Integumentary "	116	12	34	10	2,418	14
Old age	6.115	657	1.589	538	182.492	1,078
Violent	3,584	386	1.344	456	58,763	347
All digestive	16,234	1.744	4.905	1,665	132,035	780
All respiratory	29,614	3,184	10,059	3,417	525,956	3,108
Cholera and cholera infantum	3.380	364	193	65	3.490	20
Dysentery	6,056	651	2,240	760	3,068	18
Fevers	7,186	762	2,492	846	83,092	491
Scarlatina	4,259	458	1,064	361	62,911	371
Measles	682	73	295	100	42,413	250
Croup	2,016	216	1.132	387	21,625	127
Hooping-cough	969	104	343	116	39,594	233
Consumption	20,864	2,243	6,713	2,299	296,390	1,751

So far as these facts admit of any inference, there is some difference in the ratio of prevalence of various diseases in England, New York, and Massachusetts. The endemic, epidemic, and contagious diseases bear a much larger proportion to the whole in these States than in England. The diseases of the nervous system were comparatively more frequent there than here. The diseases of the respiratory organs were relatively more abundant in New York than in Massachusetts, and the same in Massachusetts as in England, being severally 34, 31, and 31 per cent. of all. Consumption destroyed 22 per cent. of all that died here, and only 17 per cent. in England. Measles were comparatively more than three times as fatal in England as in Massachusetts, and more than twice as fatal in England as in New York. On the other hand, croup was more than three times as destructive in New York, and almost twice as destructive in Massachusetts as in England. Fevers were comparatively 70 per cent. more fatal in New York, and 55 per cent. more fatal in Massachusetts than in England. Violent deaths occurred in a less varying proportion, being, in Massachusetts, 386; New York, 456; and in England, 347 in 10,000 of all from known causes. There was a greater difference in the mortality from diseases of the digestive organs, being proportionately more than twice as great in these States as in England, and more in Massachusetts than in New York. The most remarkable difference is in the mortality from dysentery. This was in ratio of all, thirty-six times as great in Massachusetts, and forty-two times as great in New York as in England.

The mortality from old age was in a larger proportion in England than in the United States, being 100 per cent. greater than in New York, and 64 per cent. greater than in Massachusetts. This difference is due in part to the difference of population, for it is newer, younger, and more progressive in New York than in Massachusetts, and more stationary in England than in either. The English population, therefore, includes more in the later periods of life who may die of old age than the American. Nevertheless, the difference is too great to be wholly attributable to this fact. The number of persons over 70 years old in 1000 of all ages, were 16 in New York, 27 in Massachusetts in 1840, and 28 in England in 1841; whereas the ratio of deaths from old age was, in New York, 53; in Massachusetts, 65; and in England, 107 in 1000 deaths from all causes. The ratio of persons who were over 70, and therefore subject to die of old age, was, in New York, 100; in Massachusetts, 166; and in England, 175. The equal ratio of mortality from this cause, in these States and England, respectively, should be 100, 184, and 175; whereas it is as 100, 122, and 200. Massachusetts then fell far short of, and England somewhat exceeded, the ratio of New York in the mortality from old age.

The average longevity of males over twenty years old, dying in the various professions and occupations, is stated in all the reports of Massachusetts and New York. It would be unprofitable to present here the longevity of each and all of these employments, for many of them included too few persons to allow any confidence to be placed in the deductions that may be drawn from them. Yet these employments may very properly be arranged into classes, according to the similarity of habits which they require, and the exposures to which those who are engaged in them are subjected. These classes are as follows:—

I. Farmers and gardeners, cultivators of the earth. Their habits are active and often laborious. They labour in the open air. They have the means of comfortable living, and are generally free from oppressive anxieties.

II. Labourers, servants, brakemen, chimney-sweepers, coachmen, stage-drivers, hostlers, well-diggers, and workmen in powder-mills. These are generally the poor. Their lives are laborious. They are mostly employed in the open air. They are subject to much care, and often to privations and discomforts.

III. Active mechanics employed mostly in the open air. Boat-builders, brickmakers, carpenters, calkers, masons, millers, millwrights, riggers, sawyers, ship-carpenters, stonecutters, and tanners.

IV. Persons actively employed abroad on the land, but not as cultivators of the earth nor as mechanics. Army-officers, baggage-masters, butchers, colliers, drovers, engineers and firemen, expressmen, ferrymen, gate-keepers, light-house keepers, lumbermen, news-carriers, peddlers, pilots, sextons, sheriffs and constables, soldiers, stablers, stevedores, surveyors, teamsters, watchmen, weighers, and gaugers.

V. Active in-door mechanics who have much and almost constant exercise, and are protected from the elements, and generally in warm shops. Axe-grinders, bakers, basket-makers, blacksmiths, bleachers, bloomers, book-binders, brush-makers, cabinet-makers, calico-printers, card-makers, carriage-makers, chaise-makers, coach-makers, chair-makers, churn-makers, cloth-makers, clothiers, comb-makers, confectioners, cooks, coopers, coppersmiths, curriers, cutlers, distillers, dyers, file-cutters, founders, furnacemen, glass-blowers, glass-cutters, gunsmiths, harness-makers, hatters, leather-dressers, machinists, maltsters, match-makers, morocco-dressers, nail-makers, paper-makers, painters, pianoforte-makers, pill-makers, potters, pump and block-makers, reed-makers, rope-makers, sail-makers, sash-makers, screw-cutters, soap-boilers, tallow-chandlers, tinsmiths, tobacconists, trunk-makers, turners, wagon-makers, weavers, wheelwrights, upholsterers, victuallers, and wool-sorters.

VI. Sedentary and quiet mechanics, &c., employed within doors. Artists, barbers, cigar-makers, dentists, engravers, goldsmiths, jewellers, operatives, portrait-painters, printers, saddlers, shoemakers, shoecutters, silversmiths, tailors, watch-makers, whip-makers, comedians, and musicians. Their employments do not usually give them as much exercise as their health requires. They are protected from the elements, and are mostly occupied in warm shops.

VII. Seamen employed on the ocean and the lakes—sailors, fishermen, and naval officers. They are exposed to severities of the weather, and occasionally to some privations.

VIII. Merchants, traders, grocers, apothecaries, druggists, booksellers, stove-dealers, provision-dealers, clerks, manufacturers, speculators, bankers, bank-officers, brokers, capitalists, gentlemen, innkeepers, postmasters, railroad agents and conductors, ticket-masters, and superintendents of factories. Their occupations require little or no bodily labour, but some or much exercise of the brain. They are principally engaged in the affairs of trade; in making or managing money, or watching the details of business. They are employed within doors, and can generally or always be protected from the elements.

IX. Professional men, clergymen, judges, justices, lawyers, physicians, professors, teachers, students, civil engineers, editors, and public officers. Their occupations require much labour of the brain, and but little of the body. They are engaged much in abstractions and principles, and in the application of these to the common affairs of life.

X. Mechanics, whose special occupations are not stated.

The following table presents the number and the average longevity of the males, over twenty years old, who belonged to these several classes and are reported as having died in Massachusetts during the nine years and eight months ending with 1850, and in New York during the years 1847 and 1848.

CLASSES OF OCCUPATIONS.	MASSACHUSETTS.		NEW YORK.		MASS. & N. YORK.	
	Deaths.	Av. age.	Deaths.	Av. age.	Deaths.	Av. age.
I. Farmers, &c.	7196	64.58	5180	55.41	12376	60.8
II. Labourers, &c.	3428	45.44	1324	39.96	4752	43.7
III. Active out of door mechanics	1701	50.39	208	48.7	1909	50.21
IV. Other active persons in open air	330	44.23	48	43.43	378	44.13
V. Active mechanics, &c., in shops	2086	45.22	248	46.29	2334	45.36
VI. Sedentary mechanics, &c., in shops	1980	37.7	203	42.48	2183	38.3
VII. Seamen	1717	42.48	54	40.9	1771	42.42
VIII. Merchants, financiers, &c.	1626	45.58	362	39.88	1988	44.53
IX. Professional men, &c.	650	56.32	427	38.24	1077	49.26
X. Mechanics, trades not specified	216	43.66	838	45.1	1084	44.8

Here is exhibited a great difference of longevity of men in the various classes of employment, and this is generally in favour of those who lead a life of action in the open air. The cultivators of the earth enjoyed the longest, and the sedentary mechanics, in warm shops, the shortest life. There is an observable distinction, in this respect, between the carpenters, masons, &c., mechanics whose occupation is laborious and abroad, and tailors, shoemakers, &c., whose employment is very quiet and under constant shelter. Assuming the lowest as the standard, the point of comparison, the table shows that while the sedentary mechanics lived 100 years, the seamen lived 110, the labourers 113; the fourth class, butchers, drovers, stevedores, &c., lived 114; the merchants, &c., 115; the mechanics whose trades were not stated 116; the active in-door mechanics 117; professional men 127; active out-of-door mechanics 130; and farmers and gardeners 157 years.

Some part of this difference may be due to the difference of manner and times in which men enter and go out of some of these employments. In several of those included in the fourth class young men are mostly employed; many of these, after some years, go into other occupations, and there remain, and die at an older age. Yet, after making all proper allowance for these and other disturbing elements, there still remain remarkable differences of longevity, which are connected with, and seem to belong to, these several classes of occupations.

The facts stated in these reports are not sufficient to establish the deductions which have here been drawn from them as universal principles, nor even to demonstrate the extent to which they are applicable. But they are sufficient to demand farther investigation in the same field. It is, therefore, hoped that Massachusetts will continue to make her annual reports, that New York will revive the work which she has suspended, that Pennsylvania will carry into complete execution the law of registration which she has established, and that the other States will establish and execute similar laws for the registration and report of the births, marriages, and deaths, within their respective limits.

These laws and reports will give to the world very many important facts, in respect to life and mortality. They will enable us to take the first step toward ascertaining the sanitary and morbific influences of seasons, atmospheric conditions and localities, of employments, social conditions, circumstances, and habits of the people. They will open the way to the discovery of the causes of disease, and probably to the means and methods by which they may be modified, ameliorated, and perhaps extinguished. E. J.

BIBLIOGRAPHICAL NOTICES.

Art. XVI.—*A Treatise on the Diseases of the Chest: being a Course of Lectures delivered at the New York Hospital.* By John A. Swett, M. D. New York, 1852: 8vo. pp. 585.

The lectures contained in this volume were published in the *New York Lancet* about ten years ago, but they now include much new matter derived from a register of the author's public and private practice since that period. Dr. Swett is well known as one of the first who introduced into New York the methods of physical exploration which he had learned in the schools of Paris; he has continued to maintain a high character for skill and accuracy in the diagnosis of thoracic diseases, and enjoyed opportunities surpassed by none other for perfecting himself in this department of medicine. Such vouchers for capacity and knowledge in the author inspire a degree of confidence in his work which a study of it will not diminish.

The lectures treat in a concise manner of physical examination of the lungs and heart, and very fully of the acute and chronic affections of these organs. The great number of works that have been lately published upon the same subjects, and noticed in this journal, forbid our entering into a detailed analysis of the one before us, especially as the lectures do not claim a very recent origin, nor profess to institute a scientific inquiry which would call for a discussion of the principles and statements of authors, so much as to present in a clear and succinct manner what the author regards as established truths. Had he now to prepare a work upon the same subjects, he would, we apprehend, find reason to modify several of the doctrines, and to enlarge many of the statements contained in the one before us. Attention will be drawn to some of these points in the course of the present notice.

In explaining the mechanism of the dry rhonchi, the author says "the bronchi are rendered irritable by the existing inflammation, and being muscular tubes, at least in the smaller branches, they contract spasmodically at certain points," producing sonorous or sibilant tones according to the size of the tubes. And again, in speaking of bronchitis with obstruction to the pulmonary circulation, he remarks that this obstruction "seems to impress a peculiar irritability on the bronchi, by which the tendency to spasmodic contraction is materially increased." (p. 57.) In another place, tartar emetic is said to operate usefully by counteracting "a tendency to spasm of the bronchi," (p. 62:) this condition is also stated to play "a most important part in the paroxysms of emphysema," (p. 195,) and we are told that "it is easy to conceive that a general spasm of the bronchi should induce" the dyspnœa of nervous asthma. (p. 201.) The author furnishes no proof whatever of the correctness of an explanation of the dry rhonchi which we had supposed abandoned long ago, as purely hypothetical, and we notice this fact the rather because he is, in general, quite free from the prevalent vice of travelling beyond the record of facts and the inductions which legitimately rest upon them.

The following explanation of œgophony is hardly admissible. "It seems to be produced by the vibrations from the bronchi being transmitted to the ear over the surface of the liquid effusion, like the ripple on the surface of a pool of water from a puff of wind." According to this theory, the cavity of the chest above the point at which œgophony is audible, must be occupied by air alone, which we know is not the case. There is no reason to doubt the correctness of the ordinary explanation, to wit: the existence of a thin stratum of fluid, between the lung and the ribs opposite the larger bronchial tubes, which is thrown into vibration by the voice. As the lung is thrust away from the ribs by the accumulating effusion, the stratum grows too thick to assume the vibratory action, and œgophony ceases until the decrease of the fluid restores the same mechanical relations. The fact that pleurodynia is generally felt below and to the outside of the nipple, is well explained by the fact that at this point the movement of the ribs in respiration is greatest.

Allusion is made to the occasional value of the microscope as an aid in diagnosis. "A young lady with some suspicious chest symptoms expectorated suddenly several ounces of a dark-red or chocolate-coloured fluid. This was suspected to be blood, in part at least. But on examination by the microscope, not a single blood-disk could be discovered, but an immense number of epithelial scales from the mucous membrane of the bronchi, sufficient to give the fluid its reddish colour."

In the opinion of our author, chronic bronchitis is not much under the influence of remedies, at least in a variable climate like ours, and he, therefore, relies more upon removal to a more genial climate when this is attainable. As a substitute for this means he speaks favourably of the respirator, or wire-gauze screen, which becomes warmed by the breath, and saves the lungs from the direct contact of cold air. The invigoration of the digestive powers he justly esteems to be an important element of the cure, and therefore counsels a sparing resort to the medicines recommended for this disease, and which very generally impair the digestive function. In hooping-cough, Dr. S. is of opinion that belladonna is, at best, a palliative: he does not believe that it shortens the duration of the disease. Other observers have been more fortunate in its use.

The chapter on Pneumonia is a very complete picture of this prevalent and interesting disease. The author does not think that the difference between inflammatory congestion and simple stasis of blood in the lungs can be defined, and he rejects the ordinary test that in inflammation the tissues are softened, but are not so in congestion. If this solution be not applicable in every case, it certainly is so in the greater number, and is, indeed, the only one that can be appealed to. Gangrene of the lungs he is inclined to attribute to a loss of nutrition from obliteration of the arteries, and very seldom to inflammation. The former supposition is destitute as yet of any material support, while the latter is proved as regards a certain number of cases, and is, therefore, an allowable hypothesis for many more. Yet the inflammation in these cases is not sthenic and marked by the usual excess of fibrine in the blood. It would appear to be subordinated to a depressed state of the system, one incapable of setting up a true inflammatory process. Speaking of the influence of cold in the production of pneumonia, the author calls attention to the prolonged action of the cause as an important element. A momentary or brief exposure to even a very low temperature is far less injurious than the continued operation of this agency, especially in conjunction with dampness. A striking fact illustrating the influence of position in determining the seat of inflammation, is derived from observations made at the *Maternité* in Paris. The nurses of this institution place the children on the right side, and carry them on the left arm. "It was observed that nearly all the attacks of pneumonia were in the right lung. Care being taken to reverse the position of the children, the frequency of the disease did not diminish, but its seat was changed to the left lung." The author dwells on a very important fact, the tendency of females to exhibit a degree of delirium during the active stage of pneumonia very much out of proportion to the real gravity of the local affection. The fact we say is important, because it has doubtless led to an undue amount of bloodletting in many cases, singularly ill-prepared to bear the loss. Cold to the head, opiates, and nervine stimulants afford speedy relief. The salutary influence of bleeding in sthenic pneumonia, as well in mitigating the patient's suffering as in shortening the attack, are illustrated by the valuable results contained in Grisolle's treatise, which Dr. Swett abundantly confirms. He is also more persuaded of the good influence of tartar emetic than of mercury in this disease.

The subject of pleurisy is well handled. The author dwells particularly on the insidious character of the subacute form which sometimes reaches the stage of full effusion without seriously attracting the attention. In such cases, there is reason to suspect tubercles as the exciting cause. Several examples are given in proof of this opinion. Dr. Swett, in speaking of pleurisy in young children, is unable to explain the fact that bronchial respiration should sometimes be heard over the whole lung, even when the effusion is very large. He suggests that "in children the respiratory function is very active, and probably the lung is less compressible than in the adult." The reason does not appear to us very obscure. The walls of the chest being very extensible in children, they yield before the effusion, and allow the lung to retain more nearly its natural volume.

The author thinks that the operation of paracentesis should be resorted to in chronic pleurisy after proper remedies have been tried in vain, and before the vital powers are much exhausted. He lays down the following conditions for the operation: 1. When the side is much dilated, the intercostal spaces bulging and fluctuating, or when pointing has occurred. 2. When none of the above conditions exist, except that the effusion is undiminished by treatment. 3. When the effusion, having been partially absorbed, remains stationary. He, further, does not regard the probability that an abscess is forming in the lung, nor that the patient is tuberculous, as positive contraindications, if other circumstances render the operation proper. About two-thirds of the cases which fell under his observation terminated successfully, the proportion being greater among children than among adults.

Speaking of the treatment of croup, the author remarks that "so unavailing have been the efforts of some of our best practitioners to cure genuine croup by antiphlogistic remedies, or by a perturbating treatment, consisting in the frequent administration of emetics in conjunction with antiphlogistic remedies, that some have thought best to abandon this mode of treatment and to leave the case pretty much to the efforts of nature." We should hope that so illogical and uncharitable a conclusion were adopted only by very exceptional practitioners. To accept it would argue a strange degree of ignorance of the actual results of treatment in pseudo-membranous laryngitis. Even the mere sponging of the larynx with a strong solution of nitrate of silver were preferable to such a "meditation upon death." Of the method just alluded to, there is, to use our author's language, "reason to hope, and some reason to believe" that it "may be attended with benefit, especially in cases in which the inflammatory action has originally been inconsiderable, or has been subdued by other means." In reference to the success of tracheotomy in this disease, the author makes a just distinction of cases. Thus, where the asphyxia comes on through the gradual closure of the air-passages, and the constitution loses at every step of the attack a portion of its resisting power, tracheotomy offers a far slighter chance of life than when the attack of suffocation rapidly attains its crisis. If it be well settled that the operation itself does not involve life, the sooner it is performed the better, provided the disease proceeds from above downwards, or is confined to the larynx and trachea. But unhappily these conditions can only be conjectured to exist.

The chapter on Laryngitis is copious and instructive. Speaking of the chronic varieties of the disease, the author expresses the opinion that most cases of chronic laryngitis occur in connection with the scrofulous constitution, and are aggravated by an impaired state of the general health, dyspepsia, mental anxiety, and fatigue. "It is common to hear," he remarks, "of the inflammation spreading from the fauces to the larynx, and so downward to the bronchi, and finally to the lungs, inducing disease of the lungs. The real truth is, I think, that, in the majority of instances, the lungs were first affected, and that the disease has spread upward to the larynx and to the fauces." . . . "The influence of dyspepsia, with an impaired state of the general health, in continuing, if not in causing the slighter forms of laryngeal disease, is very striking. Yet many of these cases are by no means attended by important organic changes in the larynx. I am inclined to think that weakness and relaxation of the parts more directly concerned in the production of the voice, is often the chief difficulty, and will explain the hoarseness and the sense of exhaustion that frequently follow the exercise of the voice in clergymen; and that the good effects of stimulating applications to the parts, combined with rest, is quite as much owing to their increasing the nervous energy, as in removing any traces of inflammation that may be supposed to exist." But, in some cases, chronic laryngitis succeeds an acute attack of inflammation which has been imperfectly cured, and presents tenderness, and a sense of heat and constriction in the larynx, dysphagia, hoarseness, slight sibilant respiration, with a laryngeal cough, as its principal symptoms. It is in such cases particularly that a solution of nitrate of silver "applied to the interior of the larynx by means of the whalebone and sponge, as first recommended by Trousseau and Bellocq, may be permanently useful." But the most common and important form of chronic laryngeal inflammation is that alluded to in the beginning of this paragraph. It is so well characterized by the author that we quote his remarks, and commend them to those who have been misled by representations which seem to have been put into currency from other motives than a love of truth.

"A second class of cases, far more numerous, and in part at least dependent on a constitutional cause, *the scrofulous diathesis*, are much more insidious in their development, and much more difficult of cure. The subjects of this form of this disease are pale and delicate persons, who inherit a feeble constitution. If a careful inquiry be made, it will frequently be noticed that such persons have, for a long time, before any distinct laryngeal disease has manifested itself, been subject to an irritation of the throat, indicated by a more or less frequent desire to clear it of mucus, and a tendency to slight hoarseness and weakness in the chest, after singing, or other exercise of the voice. In clergymen particularly, in whom this form of disease is very frequent, you will see the best type of its development. An examination of the throat discovers the parts somewhat congested, the tonsils slightly enlarged, the posterior fauces presenting red elevated patches of thickened mucous membrane, with increased mucous secretion. Yet, with these evidences of chronic inflammation, the parts are relaxed, the vessels are large and often arborescent, the uvula swollen, œdematous, and flabby, and capable of being drawn out to twice its natural length by moderate traction with the forceps. The degree of hoarseness presents every possible variety, while the sibilant respiration is rarely met with. The pain in swallowing, as well as the tenderness over the larynx, is seldom marked. The sensation in the larynx is like the aching from fatigue. Such cases are often much relieved by rest, by local applications, like the nitrate of silver; but they are very apt to return again, especially under the influence of unfavourable exciting causes, as undue exercise of the voice, fatigue, anxiety, and other depressing influences. This form of the disease cannot properly be separated from the constitution that is almost uniformly found to attend it, and the chances of permanent benefit are intimately connected with constitutional remedies which improve and invigorate the general health, such as a sea-voyage, travelling, freedom from fatiguing and anxious occupation, and the use of a general tonic course. Such patients are often encouraged by even a slight improvement in their condition. They even think that they are almost or quite cured, until a relapse teaches them that a perfect recovery is not so easily attained.

"In these cases, you may discover no pulmonary disease. There may even be no cough, but only a hawking from the throat of mucus, although cough also is frequently present. Yet if, in time, the lungs do become implicated, which is very probable, and cavities form in them, then the laryngeal symptoms become aggravated by the supervention of ulceration. This is not, however, always the case, for the laryngeal disease, even if ulceration be present, may be masked to a certain extent by the pulmonary complication. Besides, much will depend upon the seat of the ulcerations. Those which attack the epiglottis give the most trouble, from the dysphagia they induce, while, if the vocal chords are attacked, the hoarseness may be much and permanently increased."

A case of simple aphonia, occurring in a person of a nervous temperament, was successfully treated by the author with strychnia.

The coexistence of emphysema of the lungs and tubercles renders detection of the latter difficult. The author would rely upon the rational symptoms, such as progressive emaciation, acceleration of the pulse, hectic fever, and hemoptysis, to form an opinion; if, in addition to these, the respiration is simply feeble at the summit of the lung, but with increased vocal resonance, the existence of tubercles is probable. A common source of error is thus described and provided against: "A young person, perhaps, of rather delicate constitution, notices habitually a slight degree of dyspnœa, and a trifling cough. The chest is examined, and a slight degree of dulness on percussion is detected beneath one of the clavicles. This may lead to a suspicion of tubercles. But this dulness is apparent, not real. It exists by comparison only, because a slight degree of emphysema in the opposite lung has increased somewhat the natural resonance on percussion. If, in this case, a slight fulness of the walls of the chest should happen to exist about the clavicle where the emphysema is seated, then the opposite space might not only sound dull, but seem depressed; and thus a new suspicion of tubercles might arise. But where the apparent dulness and depression exist, the respiratory murmur is *distinct and natural*. On the emphysematous side it is feeble."

As in other works on diseases of the chest, consumption occupies a large space in the one before us; it holds a mournful pre-eminence among the ills which flesh inherits, and one which the author does not think likely to be lost even by the apparently flattering success of the new means directed against it. In considering the influence of climate as originating and developing this disease, he lays a good deal of stress upon the mortality produced by it among the soldiers of the British and American armies, inferring that a warm climate is more favourable to its production than a cold one. We think that, as all of the statistics relate to persons, natives of a cold climate, who have been transferred to a warmer latitude, the results afford no criterion for judging of the influence of temperature as a cause of phthisis. Unquestionably this disease is of less frequent occurrence in warm than in the so-called temperate climates. The question, then, whether a person inclined to consumption would profit by resorting to a tropical climate can only be answered by the fruits of direct observation, by ascertaining how far such a change of residence has actually benefited those who have sought by its means to ward off a threatened attack, or to stay the progress of the already developed disease. Accurate data are wanting to solve this question.

It is often asserted that the use of ardent spirits tends to prevent the development of phthisis. The following fact bears upon this question. Two medical gentlemen, the author states, who are attached to the public Dead House, of New York, in which bodies are deposited which are found in the streets, or without friends, discovered, in about seventy *post-mortem* examinations of those who had died of the most confirmed and aggravated intemperance, not a single case of tuberculous lungs. Perhaps it may be objected, persons of a delicate constitution, and who are predisposed to phthisis, have less tendency than the robust towards those associations and habits which induce intemperance, and that they also feel less craving for artificial stimulus. However this may be, the fact adduced by Dr. Swett conforms to general experience, for consumption has no place in the swollen catalogue of mischiefs attributed by medical writers on intemperance to this destructive vice.

The author is of opinion that hemorrhage from the lungs does not act unfavourably on the general progress of consumption. On the contrary, he believes that it rather promises a long course to the disease, particularly if it assume the passive form. The most protracted case of phthisis he ever knew, and which lasted thirty-five years, was marked by occasional returns of, sometimes, very copious hemorrhage. These views correspond with those expressed by Dr. Walshe.

A very important principle is involved in the caution which the author gives against inferring the existence of actual phthisis from signs of solidification at the summit of the lung. When a cure of tubercle in this situation takes place the pulmonary tissue is left condensed, and will therefore furnish the same physical signs as if a mass of tubercle were situated there; there may even be signs of a cavity remaining after the thorough removal of tubercle from the lung. Hence the respiration may be feeble, harsh, jerking, bronchial even, and the percussion decidedly dull, without any tubercle to produce these sounds. The whole history of the patient, and his general symptoms form in such cases an essential and indispensable element of the diagnosis.

To the question, is consumption curable? Dr. Swett returns an affirmative answer. Not, however, in many cases of strongly-marked phthisis, although instances of marvellous recovery do occasionally take place. In illustration of the latter statement the history of a patient is related, who, to all appearance, was so far gone in consumption, with a large and well-marked abscess under the clavicle, that he was daily expected to die. Yet in the course of two months afterwards he had grown so stout as hardly to be recognized. The author states that during the last fifteen years he has known a number of patients who attained the enjoyment of good though not perfect health, after having had evidences of phthisis, and sometimes in an advanced stage. During the same period he has been struck with the number of cases in which patients, dying of other diseases, have presented traces of phthisis that had been cured; and, on the whole, concludes that the common expression, "the patient could not have had phthisis because he recovered," will cease to be believed. As to the means which are fitted to secure, or at least promote, the cure of consumption, he furnishes nothing new. The influences of relaxation, food, climate, &c., are in his opinion the capital ones, and not at all to be subordinated to the various specifics which from time to time have been vaunted. Even cod-liver oil is destined, in his opinion, to share the same fate as antimony, digitalis, iodine, &c. "It has not," he asserts, "any specific influence in phthisis. It has not, in my experience, performed any wonderful cures. I do not, however, mean to deny its usefulness in this disease. It certainly sometimes appears to diminish the emaciation, to improve the appetite. It is good nourishment, nothing more; and I think it probable that other kinds of oil, equally well prepared, may exert the same beneficial influence." This judgment will hardly stand against the recorded *proofs* of the efficacy of cod-liver oil. We speak not of assertions merely, which cost nothing to make as positive as may be required, but of evidence which, whether we consider the character of the witnesses for skill and probity, their number, their agreement, or the material proofs of their statements, presents a demonstration which scepticism only could resist. Doubtless the truth is exaggerated; doubtless, also, direct falsehood has been published, but enough solid and incontrovertible truth remains to establish for cod-liver oil a power over consumption possessed by no other agent whatever.

The author condemns emphatically and with great justice the practice of employing medicines in consumption which do not compensate by their usefulness for the mischief which they do to the digestive function. In this category may be included digitalis, venesection, and the whole catalogue of expectorants. Anything of this description, beyond what is requisite for palliating the cough, is injurious by impairing digestion; even opium, that precious drug, should be used with an avaricious hand, and carefully proportioned to the actual needs of the patient. Of issues on the chest and other permanent forms of counter-irritation, the opinion of the author is that they are useless with respect to the primary disease, but may relieve the secondary inflammations which sometimes accompany it. He thinks, also, that liniments, applications containing oil and plasters, are objectionable as tending to interrupt the cutaneous exhalation. This is evidently a theoretical objection to the applications mentioned, and we have, on the other hand, the practical fact that the cough and sputa are diminished, and the comfort of the patient increased by them. The best application to the chest is, in the author's opinion, water either cold or warm, according to the strength of the patient. We think that much caution is necessary here. Consumptive patients are exceedingly chilly, and may have the thoracic symptoms aggravated by water applied almost at the temperature of the body. The evaporation of the fluid, during the moment it remains upon the skin, is sometimes sufficient to produce this effect. Dry friction with a coarse towel is a safer and a very efficient stimulant, and a revulsive which may be used where water is inadmissible. The respirator, or screen of wire gauze, intended to moderate the action of cold air upon the lungs, is here again favourably spoken of by the author. It is an excellent invention, for it enables patients to breathe the fresh air and take the exercise so essential to maintaining their vigour during the long and severe winters of our climate.

The chapter on *Cancer in the Lungs* is, perhaps, the most complete in the work before us. It appears to have been based upon an analysis of original and selected cases of the disease. After a clear and succinct account of the general anatomy of cancer, the author states that encephaloid is the most common variety affecting the lungs. Thus, of twenty cases, sixteen belonged to this form, three of encephaloid and scirrhus united, and one of scirrhus and colloid.

One of these tumours, described by Dr. S., weighed eleven and a half pounds. Five times in twenty the tumour originated in the posterior, and once in the anterior mediastinum. In twenty cases the amount of deposit was sufficient to have produced physical signs of disease, ten times over the right and six times over the left lung. The disease may terminate fatally in two months after the first development of its symptoms; it may continue for four years; its mean duration being between thirteen and fourteen months. The age of the patients in the cases furnishing this summary varied between twenty-three and seventy-two years, and five of them only were females.

The author divides cases of cancer of the chest into two classes, those in which the disease originates in the lung, and those in which the mediastinum is its original and principal seat. The symptoms of the latter are chiefly such as are due to pressure. Neither form has characteristic symptoms, none, at least, until an advanced stage of the disease; and then, besides the general phenomena of consumption, œdema of the face and extremities, enlargement of the superficial veins of the trunk, and the characteristic straw colour of the skin, give certainty to the diagnosis. The affected side of the chest is generally *contracted.* Neuralgia of the thoracic and brachial nerves is met with in some cases. Dr. Swett does not regard the straw colour of the skin as diagnostic of cancer, but merely as denoting anemia; for, in his analysis of cases, this symptom appears to be connected with hemoptysis; and he remarks, further, that this complexion is quite as characteristic of fibrous tumours of the uterus with hemorrhage, as it is of any form of cancer. The differential diagnosis of cancer of the lung will best be understood by the following extracts:—

"The diseases with which cancer of the lung is most apt to be confounded, are tuberculous phthisis, empyema, and aneurism of the thoracic aorta. In phthisis, the disease often commences with nearly the same symptoms, and progresses in a similar manner; and even the physical signs, as in one of the cases that occurred to myself, may be quite analogous. Yet in most cases of cancer, there are some anomalous symptoms which are not met with in phthisis. Thus, in the case to which I have alluded, there was severe neuralgic pain extending down the arm, which at once made me doubt the existence of phthisis. The pulse was also quite natural in frequency, which could certainly not be expected in a case of phthisis so far advanced, and there was no hectic. The absence of hectic symptoms and a tranquil pulse seem to be rather striking characteristics of cancer before the period of softening; a condition which, probably, does not often occur until a late period of the disease. A leading fact in the history of tuberculous disease is the great uniformity of its seat at the summit of the lung, and its tendency to pass to the formation of cavities. Neither of these facts is true in cancer. Again, tuberculous disease in its progress most frequently affects both lungs so as to be recognized by the physical signs. This is not the case with cancer. The physical signs are seldom detected in more than one lung. Again, the symptoms induced by pressure upon the veins are not observed in phthisis, as they, not unfrequently, are in cancer of the lung. Œdema of the upper regions of the body, enlargement of the superficial veins, are not likely to occur in phthisis. Cancerous tumours, when developed in other organs so as to be felt externally, are usually larger than those of a tuberculous nature. In empyema, the affected side of the chest is usually dilated; there is always extensive dulness on percussion, and absence of respiratory murmur, unless at the apex and at the root of the lung. In cancer of the mediastinum, precisely the same physical signs may exist, and in both diseases you may notice an œdema of the upper portions of the body and enlargement of the superficial veins. In the remarkable case of mediastinal tumour that I have stated to you, the only physical sign that might have led to the suspicion that the disease was not a collection of fluid in the chest was, that the dulness, although universal, was yet most marked under the clavicle of the affected side. This would not readily happen in empyema: the subclavicular portion would, probably, sound clearer on percussion than other portions of the affected side.

"In cancer of the substance of the lung, the affected side is usually contracted and very dull, and a bronchial respiration is heard over it. This character of the percussion and of the auscultation is sometimes met with in empyema, but it is rare. You may remember a case to which I alluded when speaking of empyema, in which a bronchial respiration existed all over the affected lung, with universal dulness on percussion; and which was found, after death, to be empyema with ancient adhesion of the lung to the diaphragm. But in this case the side was dilated, which would not have happened, probably, in cancer of the lung; although in empyema the side is not necessarily dilated. I have seen it contracted, even with a considerable effusion of pus in the chest.

"Cancer of the lung may be confounded with aneurism of the aorta, or with valvular disease of the heart. If a cancerous mass, too small to produce any external tumour, is infiltrated around the origin of the great vessels of the heart and compresses them, the physical conditions of a permanent organic bellows murmur are produced. How could you distinguish this case from valvular disease of the heart? Not by the sign I have mentioned. But, perhaps, other circumstances might exist. The heart is not enlarged, perhaps, as it would probably be in valvular disease. So in the attempt to diagnosticate a tumour caused by a cancerous mass from an aneurism of the thoracic aorta. How could you do this? Both diseases are tumours, compressing, irritating the organs in the chest. But an aneurism of the aorta has certain favourite seats in the chest, in front, about the right third rib, at the top of the sternum, above the clavicle. These are not the favourite seats of cancerous tumours. Again, a bellows murmur remote from the heart, a thrill, and when it presents externally, an expansive pulsation, belong to aneurism, rather than to a cancerous tumour. Finally, in all suspicious cases, be careful and examine other portions of the body—the abdomen, the subcutaneous organs, and, perhaps, you may discover a tumour, or many tumours, which will aid you materially in the diagnosis."

In the division of the work relating to diseases of the heart, the author devotes two lectures to an account of the action of the organ, and the signs furnished by it in disease. He follows very nearly the exposition of these which was taught by Hope, and does not appear to have paid much attention to the nicer distinctions which recent observation has established. The impulse of the heart is ascribed exclusively to the systole of the ventricles; but, as usual, the phenomena of the particular cases refute this theory. Thus it is stated that, according to Dr. Taylor, the friction sound, when double, is most distinct with the ventricular *diastole*, and that when single it usually accompanies the diastole; a state of things wholly irreconcilable with the theory of the impulse being caused by the systole of the ventricle. Again (p. 502), a case is related in which there were two hundred and eight pulsations of the heart per minute, for ninety-six of the radial artery, which would be impossible, except on the supposition that the former pulsations occurred during the diastole of the ventricle, or on that of the vessels being almost empty of blood. But here the latter cause did not exist.

The lectures on *Pericarditis* and *Endocarditis* present a full and clear history of these affections; but the limits of this notice forbid our entering into particulars. Some remarks on the treatment of the former disease, however, deserve notice. Every one must have remarked the extremely slow progress of absorption in some cases of pericardial effusion. This sometimes appears to depend upon the patient's feeble constitution, or upon the adoption of too active a treatment at the commencement of the attack of rheumatism, or whatever affection gave rise to the pericarditis. In these cases the author calls attention to the necessity of abandoning all antiphlogistic remedies, and resorting at once to a nutritious diet, with tonics, such as the compounds of iodine and iron, and securing rest by opiates. There are mixed cases, too, in which a tonic treatment should be added to a cautious mercurial course; and chronic cases, which demand iodine and mercury, along with diuretics and blisters. In endocardial inflammation, or what passes for such in the course of acute articular rheumatism, the author adopts the strenuous advice of Dr. Latham, to commence the mercurial treatment early in the disease, and to pursue it actively, and he adds that his own experience confirms the observations of the eminent author of this suggestion.

Under the head of *Enlargement of the Heart*, Dr. Swett unites the consideration of hypertrophy and dilatation, because, as he remarks, these two conditions are generally united. In an elementary work, it would have been more intelligible to treat of them separately. The reader would then have formed a clearer notion of what symptoms are due to each element of the combined disease which is most frequently met with in practice. The account of them is, for the most part, clear and consistent. The chapter on valvular disease presents a very faithful history of the symptoms and lesions of this class of affections, though we think that an occasional error is committed by explaining the phenomena according to the prevalent theory; and that numerous points are passed more lightly over than they would have been in a course of lectures written at the present time. The progress of the last ten years has completed or rectified many doctrines. Such, for instance, is that of cyanosis, which Dr. Swett explains by the now untenable theory of the admixture of the venous with the arterial blood.

Functional disturbances of the heart are described, as well as the causes which produce them by debilitating the nervous system. Several interesting cases in which the affection arose from venereal excesses are related, and some which belong rather to the category of angina pectoris. Inflammation, induration, softening, fatness, rupture, atrophy, displacements, malformations, and polypi of the heart, are briefly but clearly discussed; the last subject particularly is dwelt upon as an accidental cause of death which it is hardly possible to foresee or to provide against. In the two concluding lectures the author presents a history of aneurism of the heart and great vessels, which contains all that is essential to an understanding of the subject, and is illustrated by several interesting cases. In one of these the rupture of the aneurism took place in the spinal canal, inducing sudden paraplegia; in another, an aneurism of one of the coronary arteries, about the size of a pigeon's egg, had ruptured into the pericardial sac. The case was that of a young lady who had just been dressing herself for a ball. In descending the stairs, from her chamber, she died suddenly. The following statistics of aneurism are interesting:—

"In 40 cases of aneurism of the ascending aorta, 19 were ruptured; 16 were of the false variety; one an aneurism by dilatation; and in two cases their character was doubtful. Of these—7 ruptured the pericardium; 2 the right ventricle; 2 the right auricle; 2 the vena cava superior; 1 the pulmonary artery; 1 the œsophagus; 2 the right pleura; 1 the left pleura; 1 the right lung.

"In 31 cases of aneurism of the arch, 20 were ruptured. Of these—16 were cases of the false aneurism; 3 of the aneurism by dilatation; in one case the character was doubtful. Of these—6 ruptured the trachea; 3 the œsophagus; 3 the left pleura; 3 the pericardium; 1 the left bronchus; 1 the left lung; 1 the pulmonary artery; 1 the posterior mediastinum; 1 externally.

"In 16 cases of aneurism of the descending thoracic aorta, there were 20 ruptures: 15 were the false aneurism; 1 of the aneurism by dilatation. Of these —5 were ruptures of the left pleura; 3 of the left bronchus; 3 of the œsophagus; 2 of the left lung; 2 of the trachea; 2 of the right lung; 2 of the posterior mediastinum; 1 of the pericardium."

When describing aneurism of the *arteria innominata*, the author alludes to what he styles "the bold and brilliant operation of Dr. Mott, for the cure of this aneurism," a strange epithet, as it strikes us, when applied by a pathologist of Dr. Swett's attainments.

In conclusion, mention is made of stricture of the aorta which the author regards in the light of a pathological curiosity. He refers only to two cases, of which one occurred to Mr. Nixon, of Dublin, and the other to Dr. Clark, of New York. In both cases, aneurism was supposed to exist. The most complete account of this subject is contained in the *Inaugural Thesis* of Dr. Barth, of Paris, published in 1837, and is founded on an analysis of twenty-four cases, of which one was original. The diagnostic symptoms are chiefly the following: coldness, weakness, and numbness of the lower limbs, without pain in the spine or symptoms of apoplexy, and then the appearance of ecchymosis on the extremities. If these signs, or some of them, fail, there may still be observed strong pulsations of the arteries of the upper part of the body, and comparatively feeble ones of those supplying the lower limbs, unwonted force of the intercostal arteries, and sometimes a difference like that just noticed in the pulsations of the aorta itself above and below the point of stricture. In Dr. Clark's case, as in others, a loud sawing sound was heard beyond the seat of the disease, but on the cardiac side of it not at all.

The foregoing are the principal points in the work before us which seemed to call for criticism, or which make some addition to the knowledge which was already possessed concerning thoracic diseases. The work of Dr. Swett, taken as a whole, will be found useful by the learner, to whom it seems particularly addressed, because it presents its subject in a plain, intelligible, and accurate manner. The practitioner will value the illustrations drawn from the author's personal experience, and appreciate the simplicity and good sense which mark its precepts. A. S.

Art. XVII.—*Reports of American Institutions for the Insane.*

1. *Of the New York State Lunatic Asylum*, for 1849 and 1850.
2. *Of the New York City Asylum* (*Blackwell's Island*), for 1849 and 1850.
3. *Of the New Jersey State Asylum*, for 1849 and 1850.
4. *Of the Pennsylvania Hospital for the Insane*, for 1849 and 1850.
5. *Of the Frankford Asylum*, for 1848, 1849, and 1850.
6. *Of the Maryland Hospital*, for 1846, 1847, 1848, 1849, and 1850.

1. Dr. Brigham, the late distinguished superintendent of the New York State Asylum, died in the summer of 1849, and his place, during the remainder of the year, was filled by his principal assistant, Dr. George Cook, by whom the report before us was written.

	Men.	Women.	Total.
Patients at the beginning of the year	241	254	495
Admitted in the course of the year	192	170	362
Whole number	433	424	857
Discharged	207	201	408
Remaining at the end of the year	226	223	449
Of those discharged there were cured	113	90	203
Died	35	34	69

"During the past summer," says the report, "while the epidemic cholera pervaded a large portion of our country, we, through the kindness of an overruling Providence, were spared from its ravages; and, with the exception of some cases of dysentery, in the months of August and September, the general health of our patients was good. But in the month of December last (1848), the asylum was visited by the smallpox, which continued to prevail amongst us for several weeks, and in a number of cases proved fatal. No person who came here had the disease at the time of admission, or, as far as we could learn, had come from a section of the country where it was prevalent. It made its appearance in the female division of the asylum, and the first case occurred in a patient who had been here about seven months." The first, second, third, and fourth cases were very mild; the fifth, in a patient who had been at the asylum several months, confluent and severe. When attacked, the patients were removed to the infirmary.

"Of four hundred and ninety patients who were in the house at the time, and who were more or less exposed, forty-eight took the disease; viz., twelve men and thirty-six women. Thirty-three had it in a mild form; of these, six were men and twenty-seven women. Fifteen had the confluent form, of whom six were men and nine women. Fourteen died in the course of the disease, or soon after its termination; viz., five men and nine women, of whom eleven died of the disease, and, in the other three, death was only perhaps a little hastened by it." Besides the above, eight attendants had the disease, two of whom died.

The remaining fifty-five deaths were caused as follows: Dysentery 14, meningitis 7, consumption 6, exhaustion following excitement 5, general paralysis 4, epilepsy 3, marasmus 2, diarrhœa 2, pneumonitis 2, ascites 1, hydrothorax 1, suicide 1, puerperal fever 1, "disease of spinal cord" 1, erysipelas 1, apoplexy 1, "serous diarrhœa" 1, old age 1, "peritoneal inflammation from perforation of the intestines" 1.

The general system of moral treatment introduced by Dr. Brigham is still pursued. The tailor's shop appears to be no unimportant item in this system, as the report contains a list of no less than *four thousand six hundred and four* garments and articles of household furniture made in it during the year.

The officers of this institution have, for several years, taken particular pains to ascertain the number of suicides that occur within the State of New York. They think that "nearly all" are included in their tables, the totals of which are—for 1845, *seventy-four;* 1846, *sixty-four;* 1847, *one hundred and six:* 1848, *eighty-eight;* and for 1849, *sixty-two.*

The report for 1850 is the first issued by Dr. N. D. Benedict, the successor of Dr. Brigham. It is elaborate, and ably written.

	Men.	Women.	Total.
Patients at the beginning of the year . .	226	223	449
Admitted in the course of the year . .	185	182	367
Whole number	411	405	816
Discharged	209	178	387
Remaining at the end of the year . . .	202	227	429
Of those discharged, there were cured . .	94	77	171
Died	34	17	51

Causes of death.—Chronic mania 12, acute mania 2, dysentery 13, general paralysis 3, erysipelas 4, pleuritis 2, phthisis pulmonalis 2, diarrhœa 2, operation for strangulated hernia, acute gastritis, typhus fever, acute dementia, aneurism of aorta, phagedæna, ascites, metro-peritonitis, strangulation, suicide, 1 each.

Of the deaths from chronic mania the report says: "These cases presented no evidences of organic disease; no inflammation, or results of inflammation, in any tissue or organ. For months before their dissolution the capillary circulation became extremely feeble, the secretions imperfect, the elaboration and appropriation of food defective, and consequent emaciation ensued. The whole train of morbid phenomena being referable to insanity, it seems proper to report them as dying of mania rather than of marasmus." We suspect, however, that such cases are, in most asylums, reported as deaths from marasmus.

"Thirteen died of dysentery, though it was at no time epidemic in the institution. We include, under this head, a form of disease very unlike dysentery of private practice and of general hospitals, but which we believe is very common in asylums, and which we do not recollect to have seen called by any other name. In occurs in chronic cases whose powers of life have long been gradually sinking, and, in recent cases, who have become much exhausted by protracted excitement. Without premonitory symptoms, or exposure to known exciting causes, the patient is suddenly seized, and generally in the night, with bloody discharges, scanty and gelatinous, or, more frequently, copious and serous, with no heat of skin or abdomen, nor pain or thirst, or loss of appetite or strength. Death supervenes a few days after the attack. We have perceived but little benefit from remedies in this form of disease, the treatment for ordinary dysentery proving entirely nugatory."

There were twenty-three cases of erysipelas in the course of the year, mostly in the cold months, when the air of the halls was the most impure. "It is said of one of the New England hospitals, before infested with erysipelas, that, after the introduction of a system of forced ventilation, this formidable disease entirely disappeared."

One of the cures reported was that of a man who had been insane upwards of six years, had been several years in the asylum, and long considered as demented and incurable. "He would stand for hours in strange postures, apparently without thought or feeling. Gradually, he began to take notice of things around him, and to exercise. He resumed his trade, that of a tailor, and at length acquired his former dexterity and skill." This case furnishes another proof, not only of the importance of perseverance in the treatment of the insane, but also of the singularity of this wonderful and mysterious disease. By "perseverance in treatment" we mean the keeping of the chronic insane at institutions where the circumstances of their position furnish the greatest aid to a spontaneous or natural cure; for we presume that, in this case, *medical* treatment had long been abandoned. The case reminds us of one which once came under our observation. A lunatic had been under curative treatment until the hope of restoration was relinquished. He was pronounced incurable; a commission of lunacy was immediately appointed, his case legally investigated, and he was put under guardianship. *Within three weeks from that time he was perfectly well, and soon returned to his employment as clerk in a large mercantile establishment.*

In the treatment of acute mania, with violence, raving, and consequent exhaustion, Dr. B. employs seclusion, hot baths with cold applications to the head, and free evacuation of the bowels. "*In no case,*" says he, "*have we found local or general bleedings admissible; but, on the contrary, nutritious diet and brandy-punch are generally demanded.*"

The physician by force, in Molière's "*Médecin Malgré Lui,*" speaks of the stomach as being situated upon the right side, and the liver upon the left. An interlocutor seems puzzled by this asserted position of the viscera, and mentions his impression that the stomach is on the left side and the liver on the right. Hereupon the physician by force acknowledges that, *formerly*, such was their position, but very sagely adds, "*nous autres médecins, nous avons changé tout cela.*" With much more truth may it be asserted, in regard to the treatment of acute mania, as recommended by Rush, and as generally practised in this country until within a comparatively few years, "*nous avons changé tout cela.*" This change has taken place, not at the Utica Asylum alone, but at all, or nearly all, the institutions for the insane in the United States.

"Of moral, or, perhaps more correctly, *immoral* insanity," says the report, "nine cases have been under our care, two of whom have been admitted within the last year. These cases present the various forms of derangement, from the mere rascally little sinner (two were lads) up to the most aggravated form of the genuine disease. We have an idea that a remedy, not much known to modern science, but in vogue in the days of Solomon, commenced early and faithfully persevered with, would have been eminently successful in preventing the development of the disease, or, at least, arrested its progress before its full establishment. One of our patients is the exact counterpart, if not the identical fellow seen by Mr. George Combe, in the Dublin Lunatic Asylum, who exhibits a total want of moral feeling and principle, yet possesses intelligence, ingenuity, and plausibility. He has been a scourge to his family from childhood; was sent to the army to get rid of him, from which he was turned out as an incorrigible villain, always fighting and getting drunk, for which he was rerepeatedly flogged. By seclusion, he becomes so savage as to render the task of entering his room and supplying his wants by no means enviable; and when at large he often assaults those around him. His chief employments are eating and fighting, and although he is constantly endeavouring to '*get out of these barracks,*' he seems to have no particular object in view but the more free indulgence of these propensities. In all but this one case, moral treatment alone has accomplished our object; but on him little moral influence can be exerted. By the aid of nauseating remedies and purgatives, frequently administered, we are enabled, in some degree, to control him. Blisters and setons to the back of his neck are now being tried."

The physicians to insane hospitals generally acknowledge their tables of the "causes of insanity" to be comparatively valueless. That they are so, we have a striking proof in the report before us. Of the *two thousand three hundred and seventy-six* patients admitted previously to 1849, only *nineteen*, or *four-fifths* of *one per cent.* are reported as having originated from masturbation; while of *three hundred and sixty-seven*, received in the course of the year mentioned, *fifty-three*, or more than *fourteen per cent.* are attributed to that cause. Now, no reasonable man can believe that both of these statistical items can be true. Whence is the error? In the fact, undoubtedly, that they were reported, the former by one physician, and the latter by another;—by two men who, although they may have been equal in talent, learning, and skill, may have *favoured different theories;* or the one may have been somewhat more thorough in his investigations than the other.

"Frequently," writes Dr. B., "the patient himself can give the most satisfactory cause of his insanity, and often the very opposite to that attributed by his friends. This is especially true of masturbators, whose insanity is looked upon by friends as caused by 'religious anxiety,' because the first evidence of it noticed was an extraordinary anxiety about their salvation; an inordinate fear of future punishment; or abandoning all occupation but that of reading; or holding a Bible as if reading; or praying; or mumbling incoherent sentences, in an attitude of prayer, at improper times and places; or 'trying to tell his experience' in a religious meeting; or joining in and going to great lengths in the excitement of protracted religious meetings, or in such like acts. Another class, frequently placed under the head of 'religious anxiety,' are religious monomaniacs, whose insanity is undoubtedly referable to dyspepsia, habitual indigestion, and constipation, and the injudicious use of remedies for these diseases."

In the treatment of masturbation, "we rely mainly on mechanical restraint and aphrodisiac medicines. The combination we prefer is that of conium, camphor, and belladonna; and we think we have indubitable evidence of its power. We sometimes prescribe blisters and cold baths with advantage."

Although we have exceeded our usual limits in the notice of this report, we cannot leave it without laying before our readers the following extract:—

"Of the 816 patients in the institution, during the past year, the suicidal propensity existed in 66, 22 males and 44 females. There were 28—21 females and 7 males—in the house at one time. In 20 of these 21 females the propensity was intense. To have at one time under care twenty-eight persons bent upon destroying themselves, is a burden which they alone know who bear it, increased by the necessity of carrying, at all times, amid surrounding sadness, a cheerful countenance over a heavy heart. The successful attempt at self-destruction, before reported, was made on the 12th of July, by a female patient of our most intelligent class. Her melancholy end became known to her companions, with whom she was a favourite, and, on the following day, two other patients on the same hall were overheard devising a plan for their own death. About this time, the suicidal propensity prevailed extensively, and seemed to be epidemic. There were admitted, during the month of July, the large number of forty-four patients, from different portions of the State, *nineteen* of whom were suicidal. Several of these had attempted suicide immediately previous to admission. Two patients, *who had long been in the house, and never exhibited suicidal propensities*, attempted it during the month (on the 13th), *though they had no knowledge of the violent death that had occurred in another portion of the building*. On the 17th, a patient, believed to be entirely ignorant of all that had occurred previously, attempted strangulation, and continued to repeat the attempt until restrained by mechanical means. On the 20th, a patient tried to open a vein in her neck; and, on the 22d, another, who knew of the suicide, and was no doubt influenced by it, attempted her destruction.

"From the 14th of July, fourteen attempts were made by eight different persons; and twelve others, in whom the propensity was strong, required constant observation. The suicidal epidemic prevailed from the 12th to the end of

July; after which time it gradually subsided, and left the minds of most of the patients."

The whole number of patients admitted, since the opening of the asylum, is,	2743
Of whom there have been discharged cured	1188
Died	320

	Men.	Women.	Total.
2. The number of patients at the Asylum on Blackwell's Island, New York, January 1, 1849, was,	187	250	437
Admitted in the course of the year	229	230	459
Whole number	416	480	896
Discharged	145	138	283
Died	85	127	212
Remaining, January 1, 1850,	186	215	401
Of those discharged there were cured (from insanity),			172

Thirty-six cases of delirium tremens, one of hysteria, and three of febrile delirium, also recovered.

Causes of death.—Cholera 86, chronic diarrhœa 38, diarrhœa 10, dysentery 4, consumption 21, congestion of brain 12, apoplexy 5, epilepsy 5, paralysis 2, paralysie générale 3, typhoid fever 8, delirium tremens 3, erysipelas 2, old age 4, and of scrofula, scurvy, suicide, albuminuria, typhoid pneumonia, chronic peritonitis, softening of the brain, dropsy, and exhaustion from exposure to cold, before admission, 1 each.

There were more deaths in June and July than in the remaining ten months —a mortality caused by the prevalence of the cholera. The first case of this disease was on the 10th of June, when there were 577 persons in the establishment, of whom 497 were patients. Of the whole number, 148 were attacked, and 91 died. The greatest number of new attacks, on any day, was 15, on the 9th of July; the last attack was on the 26th of the same month. "The principal sufferers were those who were usually lying about upon the floor or benches, regardless of their situation, and, in some cases, addicted to filthy habits, resulting from their demented state. Their physical condition was impaired generally."

The subjoined table shows the duration of the disease, from the time of attack, in the 91 cases of death:—

6 died in from 3 to 6 hours; all were collapsed *ab initio.*
18 " 6 to 12 hours; all were collapsed *ab initio.*
30 " 12 to 20 hours; all were collapsed, apparently *ab initio.*
16 " 20 to 30 hours; all collapsed from 4 to 12 hours after attack.
6 " 30 to 48 hours: 5 collapsed, 1 partially collapsed.
4 died on the 3d day; all partially collapsed, and died from prostration.
4 died on the 4th and 5th; 2 collapsed, 2 partially so; all died from consecutive fever.
7 died after the 5th; 3 collapsed, 2 partially so; all died from consecutive fever.

"In those who were not entirely demented the intellectual powers were apparently improved during the severity of the disease; but, at its subsidence, the mind resumed its previous condition."

Of the 148 cases, there was neither diarrhœa nor vomiting in 1, no diarrhœa in 1, no vomiting in 5, and no cramps in 59. Diarrhœa, vomiting, and cramps occurred in 82, and complete collapse in 90. Premonitory symptoms were known to exist in 61, to be absent in 31; and there were 56, in regard to which this fact was unascertained.

"In the case in which vomiting and diarrhœa were absent, there were severe cramps in the extremities, and extreme collapse, death occurring in three hours, followed by strong muscular contractions. The patient in whom diarrhœa was absent had severe cramps in the extremities and abdomen, excessive vomiting and feeble pulse, but recovered. The five in whom vomiting was absent were collapsed directly after the commencement of the disease. In one, cramps were likewise absent. All died, in three, five, four, three, and sixteen hours respectively. Of the 59 cases in which cramps were absent, 13 were partially and 32 completely collapsed: 36 of this number died."

The term *collapse* is used here in reference to those cases alone in which the patient was pulseless.

The erection of a new "Lodge" for violent patients, and of a large addition to the principal building, has given to the patients of this institution the additional room which was so much needed; and, rendering the improved management the more effective, has been of no little assistance in elevating the establishment above the wretched condition which made it a "shame and a reproach" to a Christian community. "Less restraint," says Dr. Ranney, "has been requisite, and frequently it has not been necessary, during the day, to apply any restraining apparatus, *or even to confine a single patient to his room. The number of violent paroxysms, accidents, and attempts to commit suicide, has been lessened. At least one-third of the whole number of patients have been engaged in some species of labour.*"

Why, Dr. Ranney, people who visited your institution in 1846 would hardly know where they were should they call there again. At that time, one would have as soon looked for a library at the sources of the Nile, or among the Esquimaux, as at that asylum; but now the patients are supplied with "biography, history, geography, philosophy, theology, poetry, fiction," &c., and "free access to the reading-room has contributed much to the restoration of convalescents." That is as it should be. No more blessed resurrection has occurred within the limits of our experience.

In the report of the visiting physicians, Drs. Ogden and Williams, it is remarked, in reference to the cases of cholera, that "several patients refused to take medicine, and those all died; while many in apparent extreme collapse recovered under medical treatment—an important fact, showing the fatality of the disease when left to the unassisted efforts of nature."

	Men.	Women.	Total.
By the report for 1850, it appears that the number of patients, on the 1st of January, was .	186	215	401
Admitted in the course of the year . . .	195	196	391
Whole number	381	411	792
Discharged	138	113	251
Died	43	34	77
Remaining, December 31st, ...	200	264	464
Of those discharged, there were cured . .			179

Among the cures were 25 cases of delirium tremens.

Causes of death.—Consumption 23, general debility 20, paralysis 6, paralysie générale 5, congestion of the brain 5, epilepsy 2, apoplexy 2, dropsy 3, stomatitis 2, suicide 2, inflammation of the brain, diabetes, empyema, lumbar abscess, erysipelas, chronic diarrhœa, and old age, 1 each.

The proportion of deaths, upon admissions, was four per cent. less than in 1848, and ten per cent. less than in any other year; that of recoveries was two per cent. greater than in 1848; and ten per cent. greater than in any previous year. Such are the expected, because the legitimate, results of the improved and still improving condition of the asylum.

From motives of "economy"—whether *domestic* or *political* we cannot assert, though, judging from the management of some of the institutions upon Blackwell's Island, while they were under the government of the common council of the city, we should strongly suspect it to be the latter—the convicts of the penitentiary have been employed as domestics and attendants at this establishment. Some of the results of this system are thus alluded to in the report:—

"The prisoners not only steal the clothing of the patients, but anything else of value that falls in their reach. As an illustration, the following case may be mentioned, *as one from a great number of cases of a similar character.* A few years ago, a young lady, who had been insane for some time, was admitted, and, although partially demented, her self-esteem was gratified by the possession of a beautiful head of hair. The morning after admission, it was observed that her head was completely shorn, and, after a long examination, the ringlets so highly valued were found in the possession of a prison aid in the hall, who had committed the theft for the purpose of selling them to a peruke-maker."

The correction of this evil, by hiring suitable attendants, has been commenced, and will, undoubtedly, be completed before long. Various improvements, both within doors and without, were made in the course of the year. Among the former is the allowance, "*for the first time*," to the patients, of knives and forks, in several of the halls. One of the best evidences of improvement, to persons who know the former condition of this asylum, is found in the gardener's report, where it is stated that an aggregate of 2779 days' labour was performed by the patients, between the 26th of May and the 31st of December. They raised *twenty thousand* cabbages, and other vegetables in proportion.

The visiting physicians, in their report, say that the number of pauper lunatics in New York city, on the 1st of September, 1834, was 116; whereas, on the 1st of January, 1851, it was 464. "Estimating the future increase from these data, the city and county of New York will, fifteen years hence, have more than a thousand lunatics to be supported at the public charge."

They suggest various improvements, which, if adopted and effected, will render this institution one of the best of its kind. At the close of the report, Dr. Williams resigns the place of attending physician.

3. From the report for 1849, of Dr. Buttolph, of the New Jersey State Lunatic Asylum, we extract the following statistics:—

	Men.	Women.	Total.
Patients in the Asylum, January 1, 1849,	46	37	83
Admitted in the course of the year	55	41	96
Whole number	101	78	179
Discharged	39	30	69
Remaining, January 1, 1850,	62	48	110
Of those discharged, there were cured	24	20	44
Died	4	5	9

Causes of death.—Exhaustion 5, consumption 2, chronic diarrhœa 2.

"During the prevalence of the cholera, in neighbouring places, a marked epidemic tendency to affections of the digestive organs prevailed in the institution; but no death, or very alarming sickness of that character, occurred."

The cure of a woman, insane more than *eighteen* years, and that of a man whose disease had existed upwards of six years, are reported. Of the former, Dr. B. says: "No expectation was entertained of her recovery by her friends or the officers of the institution; and it must be regarded as a very unusual exception to the general rule of success, and to be attributed rather to a happy and rare effort of nature, than to the course of treatment adopted, which, at best, could only be considered as having favoured such a result." Of the latter he remarks, that in the recovery of the patient he was "also agreeably surprised, and could scarcely believe that a permanent cure had been effected, until some months of careful observation of his mental state had established the fact."

Now, granting that both of these remarkable cures were, as is suggested of the first, the effect of a "happy effort of nature," the question may still be asked, If it be likely that the "happy effort" would have been crowned with such success, had the patients not been taken to an asylum? We think it would not. Nature wanted just such assistance as can be and is rendered by a well-conducted institution.

The principal part of this report is devoted to a detailed account of the management of the institution, its daily domestic duties, &c. &c.

We proceed to the report for 1850.

	Men.	Women.	Total.
Patients at the beginning of the year . .	62	48	110
Admitted in the course of the year . . .	52	58	110
Whole number	114	106	220
Discharged	28	30	58
Remaining, January 1, 1851, . . .	86	76	162
Of those discharged, there were cured . .	15	17	32
Died	6	4	10

Causes of death.—Apoplexy 3, consumption 2, exhaustion 2, chronic mania 1.

Dr. Buttolph makes the following remarks upon treatment:—

"We use medicine sparingly, being influenced somewhat by the opposition that many insane have to taking it; but more especially by the fact, that a physiological treatment is frequently quite as salutary as medical, and vastly more agreeable to the patient. Under the head of mental and moral treatment we include all those means and influences that can be brought to bear upon a person through the medium of the mind and feelings. Thus, the removal of a person from home, and the associations with which their excited, depressed, or perverted feelings have arisen, is often nearly all that is required to restore the healthy balance of the faculties. But, in addition to the effect of separation from irritating causes at home, the new scenes, regulations, employments, amusements, and, indeed, the petty inconveniences and even annoyances met with in an institution, often have the effect, insensibly, to withdraw the attention of the patient from subjects upon which he has dwelt to his injury. Hence, treatment in an asylum is usually more successful than in private, and, as a general rule, is to be recommended. Occasionally, however, cases arise in which the question of removal from home can only be properly settled by an experienced medical adviser, or by resort to the experiment of change."

After mentioning some improvements in the means of heating the buildings, which is done by steam, the report continues as follows: "As now working, we may safely challenge the world to produce another apparatus so perfect in the arrangement of its details, and so satisfactory in its results."

Dr. B. recommends an enlargement of the building by the addition of two wings, one on either extremity of the present structure, and each to accommodate thirty-eight patients.

4. Dr. Kirkbride, in the report of the Pennsylvania Hospital for the Insane, for 1849, says that the institution was full at the commencement of the year, and continued so until its close. The average number of male patients was 110, and of females 99. An additional wing, for the accommodation of twenty more women, was constructed in the course of the year. "When the institution was opened, in 1841, it offered accommodations for only 140 patients and their attendants. Since then, additions have been put up, at various times, which will now contain 80 patients with their attendants, making four new classes of each sex, and giving two fine infirmaries, and a great variety of fixtures and arrangements, of immense importance to the comfort of all, but which were scarce thought of in the commencement of the main building."

The recent additions are heated by steam. "The character of the warm air from a steam or mild hot water apparatus," says Dr. K., "is so entirely different, and so incomparably more pleasant than that from the common hot-air furnace—its neatness, avoiding, as it does, all dust, dirt, or gas in the rooms, is so striking, and—after the first cost of the fixtures—its economy is so evident, that I feel no hesitation in saying that no one, who has had an opportunity of testing its advantages, will, with our present knowledge, be willing to see any other system than one of these adopted in any building like a hospital, whether for the ordinary sick or for the insane."

Patients at the beginning of the year . . .	200
Admitted in the course of the year	208
Whole number	408
Discharged	187
Remaining at the end of the year	221
Of those discharged, there were cured . . .	104
Died	19

Causes of death.—Pulmonary consumption 5, apoplexy 2, congestion of brain 1, acute mania 4, chronic inflammation of the intestines 2, chronic organic disease of brain 1, exhaustion from high excitement 2, bronchitis 1, pericarditis 1.

Upon the approach of the cholera, "every reasonable precaution was taken to avoid the exciting causes of that disease. When it is recollected that the epidemic prevailed for some time in our vicinity, and that a public institution within sight of us lost no less than two hundred and twenty-nine of its residents, of whom seventy were insane, we must all feel that we have cause for devout thankfulness to a protecting Providence that I am able to record the fact, that not only was there not a single case of cholera in our household, but that there was no serious acute sickness of any kind, and less general indisposition than is commonly prevalent in the institution and its vicinity."

"The museum and reading-room, put up by the patients and friends of the institution, and presented to it, as a Christmas offering, last year, has been in daily use, and has proved a source of great enjoyment to a large number of the inmates of the hospital." The report is ornamented with beautifully executed wood-cuts, representing the exterior and the interior of this building, so valuable an acquisition to the inmates of the establishment. There are, also, similar views of the "Patients' Cottage" and the "Ladies' Summer House."

Although the facilities furnished, at this institution, for the moral treatment of its patients, are not exceeded, perhaps not equalled, at any similar establishment in the country, yet Dr. Kirkbride, in his untiring philanthropy and his characteristic striving for *the perfect*, looks forward to more. "The treatment of the insane," says he, "has been gradually improved, till many persons believe that little more is to be accomplished. This, however, is a serious error, and ought to be disavowed by all who are familiar with the wants of the insane. Many highly important means of treatment are still to be procured, or their use widely extended, and nothing but an absolute want of pecuniary ability ought to prevent a much greater degree of efficiency than has ever yet been attained. Conspicuous among these means are the various measures connected with the direct mental treatment of the patients—important in all cases, even in those apparently the most hopeless—but indispensable for many whose diseases assume forms that make them peculiarly interesting."

The report for 1850 is the tenth issued by the institution and by Dr. Kirkbride. It contains so large an amount of valuable matter that, although there will be no difficulty in beginning to make extracts, yet we fear that it will not be so easy a matter to decide when and where to stop.

Patients at the beginning of the year	221
Admitted in the course of the year	207
Whole number	428
Daily average number	219
Discharged	215
Remaining at the end of the year	213
Of those discharged, there were cured	106
Died	27

Causes of death.—Pulmonary consumption 5, acute mania 5, inflammation of brain 3, apoplexy 2, dysentery 2, general paralysis 2, softening of the brain 2, exhaustion following excitement 1, chronic uterine disease 1, epilepsy 1, purpura 1, disease of heart 1, old age 1.

Six of the patients died within two weeks from the time of admission.

"While simple insanity does not often produce death, it unquestionably tends to lessen the average duration of life, by rendering the individuals labouring under it less able to resist attacks of acute disease, by the difficulty often experienced in discovering sickness in its commencement, and by the resistance offered to the adoption of a proper course of treatment. There is, however, an acute form of insanity which does often cause death by a kind of exhaustion induced by the combined operation of long-continued mental excitement, want of sleep, and refusal of food. To distinguish these cases from ordinary insanity, to which they have little resemblance, the mode in which death has appeared to be caused has been inserted in the table. When acute disease of the brain has been referred to, it is intended rather to designate active inflammation of that organ than insanity."

After treating of the utility derived from the farm and garden, the workshop and mechanical department, and the museum and reading-room—the last of which has been found so useful that another, so that there shall be one for each sex, is desired—the report continues as follows:—

"During nine months of the past year, the course of lectures and entertainments in the lecture-room *was kept up regularly three times a week*, to the great gratification and benefit of the patients and those employed in their care. I have no knowledge of such a course having been regularly continued for so long a period in any other institution, and it was interrupted only on account of the hot weather rendering the room uncomfortable for so large an audience. During this intermission, on several evenings of the week, the patients were entertained in other modes, on the lawn in front of the main building.

"The practice of daily reading, by the teachers, to the patients in the different wards, especially those devoted to the more excitable class of patients, has been continued with marked good effect.

"The entertainments in the lecture-room have almost entirely done away with the social parties for both sexes that, in the earlier days of the institution, were frequently given, and the effects of the former have been found, upon the whole, to be much more satisfactory. Frequent sewing parties are still held by the matron, among the ladies of the different wards, and a grand entertainment, for all in the house, is always expected on Christmas eve, preparatory to the special dinner given on the following day."

A new feature has been added to the mental treatment, by the establishment of a library *in each ward*, of which there are sixteen. These libraries contain eleven hundred volumes. "A trial of three months has already been made with these books, and the result is most gratifying. The expressions of satisfaction, and of the benefit derived from them by the most intelligent patients, is of itself sufficient to show their great importance, and but three volumes, of little value, are reported to me as having been injured."

We now come to that part of the report which has reference to the whole period of the existence of the institution. This is introduced by some, in our opinion, very just remarks upon statistics, from which we shall extract the most important passages.

"The value of statistical tables, on any subject, must, in a great measure, depend upon the competency of the observer, and the care that is exercised in their preparation; *but the fact that there are some inherent difficulties in the case can scarcely be deemed a sufficient reason for making no attempt to overcome them, or not approaching as near as possible to absolute certainty.* There seems to be no sound reason why the statistics of insanity may not possess as much ~~certainty as those of most other maladies.~~ Notwithstanding the false deductions made by those who have carelessly analyzed these reports and tables, it must still be acknowledged that this evil will be likely to correct itself; and it cannot be denied that, with all their defects, the general circulation of hospital reports, containing the results of judicious treatment, has done more to enlighten the public mind in reference to insanity, to stimulate and give proper direction to the efforts of philanthropists, and eventually lead to a liberal provision for the wants of the insane generally, than all other means combined.

"One great error, often committed in reference to the statistics of hospitals for the insane, has been in using those from different institutions as a basis of comparison, without alluding to the varied character of these establishments, the kind of patients received, in regard to their curability and general health, the different modes prescribed for their admission, the authority to detain them for treatment without regard to the caprices of friends, and various other circumstances having an important bearing upon the results, and without a full knowledge of and allowance for which, all comparisons are perfectly useless.

"Of all the medical subjects that can be tabulated, the number is exceedingly small in which the statements are not, to some extent, matters of opinion, and this latitude is as allowable in reference to insanity as to any other malady."

	Men.	Women.	Total.
Whole number of patients admitted . .	999	807	1806
" " discharged cured . . .	466	377	843
" " of deaths	104	72	176

"The number of males in the institution has generally preponderated (over that of females); but not universally. In nearly every year, at some period, the number of the sexes has been equal; and, at other times, there have been more females than males."

The attention of those who have made themselves familiar with the reports of our institutions for the insane, during the last ten or fifteen years, must have been arrested by the fact that the number of females, not only absolute but relative to that of males, in those establishments, has been gradually increasing. While this truth indicates greater public confidence in the utility and the management of the hospitals, it throws a doubt upon what was believed to be a fact in former years—that the number of insane men in this country exceeds that of insane women.

"Among the cases embraced in this report, by far the most prevalent cause of insanity has been ill health of various kinds, and in about the same proportion in both sexes. Intemperance is set down as the *direct* cause, in 106 (out of 1806) patients, of whom 97 were men and 9 women. This, however, is far from showing its real influence in the production of the disease. It tells nothing of its effect on others, nothing of the blighted hopes, the losses of property and character, the domestic difficulties and the mental anxiety, deep and depressing, which follow in its train and owe their origin to its existence. Loss of property, directly or indirectly, is a not unfrequent cause of insanity, affecting men much more than women; while domestic difficulties are a vastly more common cause of its existence among females than males."

Fifteen cases, ten men and five women, were attributed to fright. They "were well marked, and resulted directly from that cause." After mentioning various other causes, the report continues: "Two cases in men and five in women, are reported as caused by the use of opium; and four in men, by the use of tobacco. Opium is much more used by females than males, and its effects upon the mind, no less than upon the body, are of a most injurious character. The use of tobacco has, in many individuals, a most striking effect on the nervous system, and its general use in the community is productive of more serious effects than is commonly supposed. I have never seen anything more than a temporary annoyance result from its entire discontinuance, *and by that course alone the complete re-establishment of impaired health has often been produced.*"

Some physicians report the loss of sleep as a not infrequent cause of mental derangement. Dr. K. gives no case from this origin, as he has found that the loss of sleep arose from some antecedent cause, or was the *effect* of the insanity.

When the physicians to asylums have deprecated the practice of general bleeding in insanity, they have frequently been met by the argument that *they* do not receive patients until the acute stage has passed away, and that, consequently, their authority for the treatment of that early stage cannot be valid. Of the 1806 cases reported by Dr. Kirkbride, in no less than 913 the disease was of less than three months' duration. It is not unreasonable to suppose that a large number of these had not existed two months, and many of them not *one*. Now, where are there any *ten* physicians, in general practice, in one city or vicinity, whose combined experience in the treatment of even *acute* insanity is equal to that of Dr. Kirkbride's? And yet we venture the assertion—and we call upon the Dr. to correct us, if we are in error—that, in all these 913 cases, Dr. K. has not practised venesection, *for insanity*, in a single instance. He may have done it for apoplexy, or congestion of the brain; but for mania, melancholia, or any of the maladies generally included under the name insanity, we presume to say *never*.

But perhaps we shall be referred to the authority of Dr. Rush, whose work on mental disorders is the only one generally known in this country. If so, we have two answers and another authority to offer. First: If, in the time of Dr. Rush, venesection actually was the best treatment for insanity, it does not necessarily follow that it is so now. Second: We consider the authority of Dr. Kirkbride, in the treatment of this disease, as of far greater weight than that of Dr. Rush, and that simply because we believe his experience to have been greater. Now for our authority; and it comes from a high source, the centre of London. In the early part of the present century, the system of treatment at Bethlem Hospital for the insane "consisted of *bleeding, purging, and vomiting, in the spring months. A certain day was appointed on which the patients were bled; another when they were purged; another when they were vomited. They were bled in May, and again in June*, THE PRECISE TIME DEPENDING ON THE WEATHER." The two authorities are contemporaneous. The latter is from an hospital so elevated in its position, that it is the only one, in the whole kingdom of Great Britain and Ireland, which is exempted from the inspection and surveillance of the Commissioners of Lunacy, and whose physicans, it must, therefore, be presumed, are among the most eminent in London.

But the physicians of probably nineteen-twentieths of the institutions for the insane, not only in America and Great Britain, but in France, Prussia, and Austria, condemn the practice of general bleeding, in insanity, unless it be in rare and exceptional cases.

Dr. Kirkbride has found mania to be the most curable of any of the specific forms of insanity. Next, in this respect, follows melancholia. Monomania occupies the third place; and the least proportion of cures—fifteen in two hundred and twenty-one—was in dementia.

We close our notice of this report with an extract relating to the provision for the insane in Pennsylvania.

"It is now just about a century since the Pennsylvania Hospital, the pioneer institution for the insane in America, was incorporated by the Provincial Assembly, and opened for the reception of patients. With the exception of the Friends' Asylum, at Frankford, established in 1817, and an Insane Department of the Philadelphia Almshouse, at Blockley (which, a few years since, for the first time, took rank as a curative establishment), the Pennsylvania Hospital has been the only institution in the State to which any class of her citizens could resort for the treatment of insanity, and it was, strictly, the only one which offered relief from this malady, without cost, to the indigent of Pennsylvania.

"From the foundation of the Pennsylvania Hospital, in 1751, to the present time, 6062 insane persons have been admitted and treated in its wards. Of these, more than 1000 were poor, who received every care and attention without charge of any kind, and of whom a large proportion were restored to their families in perfect health, and many others, in various states of improvement; the number of this class, under treatment, being limited only by the income of the institution.

"It will be a fitting commemoration of the services rendered by a private charity to all classes of the insane, but especially to the indigent insane of Pennsylvania, during a whole century, that, exactly at the end of that period, our noble Commonwealth will have prepared and put in operation a State Institution,* intended to afford relief to all her citizens who labour under loss of reason, and which, with a judicious organization, and fostered by liberal and enlightened legislation on the part of the government, cannot fail to spread blessings of inestimable value throughout the community.

"When the new institution is in operation, about one thousand insane patients will be comfortably provided for in the State, and, except an hospital in its western part, Pennsylvania will require no material extension of the accommodations for her insane, for many years, although important improvements will be desirable in all the existing institutions."

5. The official year, of the "Asylum for the Relief of Persons deprived of the use of their Reason," at Frankford, Pa., commences with the 1st of March.

* At Harrisburg. It is now in operation.

	Men.	Women.	Total.
Number of patients, March 1, 1848	24	31	55
Admitted in the course of the year	19	19	38
Whole number	43	50	93
Discharged			46
Remaining, March 1, 1849			47
Of those discharged, there were cured			25
Died			5

Causes of death.—Effects of long excitement 1, organic disease of the brain 1, old age 1, tumour on the brain 1, acute mania 1.

Schools and lectures constitute a part of the moral or mental treatment of the patients. "The experience of the past year," says the report, "confirms the opinion heretofore expressed, of the great utility of mental occupation, as well as bodily labour, in the curative treatment of the insane; and also its great importance in promoting the comfort and well-being of those who are incurable. It is not to be expected that the latter class should be capable of making much advance in learning, though their mental powers are certainly strengthened, and more developed by being brought into use, and stimulated by exercise; but, independent of this, important benefits result to them, from the efforts made to interest and employ their minds, inasmuch as they soon begin properly to appreciate the care and attention required to instruct them, and manifest their willingness to repay it by increased correctness of deportment."

In the course of the year, means of forced ventilation were introduced into some parts of the building, the old bath-rooms were improved, and two new ones arranged.

The leading statistics, from the report for 1849, are as follows:—

	Men.	Women.	Total.
Patients at the beginning of the year	24	23	47
Admitted in the course of the year	16	11	27
Whole number	40	34	74
Discharged			26
Remaining at the end of the year			48
Of those discharged, there were cured			14
Died			4

Causes of death.—"Obstruction of the bowels" 1, acute bronchitis 1, typhoid fever 1, suicide 1.

"Although the cholera prevailed at Frankford and in the vicinity of the asylum, yet the inmates of the institution were mercifully preserved from its fearful visitation; but, during the last summer and the first fall months, epidemic dysentery prevailed, to a considerable extent, among the patients and their attendants."

The report says that "a detailed description of the means that have been employed (in treatment), would be little more than a repetition of the matter of previous reports," and, consequently, no such detail is given. We find a similar idea expressed in the reports of several other institutions. Now, so far as our observation has extended, comparatively few people read the reports of asylums for the insane, other than physicians and those who have some near relative or friend suffering under mental alienation. Hence, a very large proportion of those readers is constantly changing. The new class of them are mostly ignorant of the modern method of treatment, and ought, as they generally wish, to be enlightened thereupon. It has, therefore, long been our opinion that each report of every institution should contain a description of the moral treatment, so full as to give a clear comprehension of it to a person previously without any knowledge upon the subject.

At or about the commencement of the official year for 1850–51, an important change was made in the organization of the Frankford Asylum, by making a physician its superintendent or principal officer. Dr. Joshua H. Worthington, who, for several years, had been the resident physician, was appointed to the place. He is well qualified for the fulfilment of its duties.

Patients at the beginning of the year	48
Admitted in the course of the year	20
Whole number	68
Discharged	25
Remaining, March 1, 1851	43
Of those discharged, there were cured	12
Died	2

"In general," says Dr. Worthington, "the time required for the cure of any case of insanity will depend on the promptness or delay with which the patient is submitted to proper treatment. The earlier the treatment is commenced, the more speedy will be the recovery; and the reverse. We occasionally, however, meet with cases of long duration, in which the condition of the patient has been much neglected, or where the disease may have been kept up by improper treatment, which recover rapidly when placed under different circumstances. An instance of this kind was that of a young man from one of the interior counties of this State, who was discharged during the last year. He had been insane for two years previous to his admission, and, at the commencement of the attack, had attempted to take his own life by leaping into a well, and afterwards had been kept bound with chains. Under our care, he recovered in the course of a few months; and, during the period of nearly a year that has elapsed since his return home, he has continued entirely well, and been usefully employed in the management of a farm."

In regard to the curability of insanity, Dr. W. states, that, "in this institution, with the reception of all classes, and the disadvantage of premature removals, the percentage of cures of recent cases, since 1842, is 72.25, there having been received, since that time, 191 cases of that description, of which 138 have been restored. If to this we add 10 per cent. as the probable loss sustained by premature removals, we shall have 82.25 per cent., which may be considered as nearly representing the proportion in which recent cases of insanity are curable. During the same period, 121 chronic cases have been admitted, 24 only of which, or 19.83 per cent., have been restored; the proportion of cures, on the whole number received in that period, being 51.92."

6. Dr. John Fonerden became connected with the Maryland Hospital in 1846; but no report, written by him, was published until the close of 1849. This report, therefore, contains the statistics of four years.

	Men.	Women.	Total.
Patients at the hospital, January 1, 1846	58	49	107
Admitted in the course of four years	139	113	252
Whole number	197	162	359
Discharged	131	95	226
Remaining, December 31, 1849	64	69	133
Of those discharged, there were cured	43	36	79
Died	40	17	57

"There were admitted, exclusive of the patients enumerated above, 107 private boarders affected with mania à potû. All of these were discharged recovered, except three who died. As asylums for the insane are not appropriate places for cases of this character, it will probably be discovered, in the progress of moral intelligence, that it is a proper function of the Temperance Societies to adopt the plan of building, on a farm near each of the principal cities, a suitable retreat; to be conducted, under the advice of a physician, by managers of mature age and discretion, who, having the promotion of temperance in view, and sufficient leisure, would aim, by their personal aid, to lead young men, after recovering from the dreadful malady, to love sobriety and usefulness of conduct."

"The number of recent cases of insanity admitted during the four years," continues the report, "was very small. Almost all the cases were of more than one year's duration before admission."

Dr. F. mentions the defects of the hospital, and the necessity of a "thorough reform." He evidently looks forward to a new architectural arrangement of the building, or to the erection of a new one, in a more suitable place. We hope that no considerations will induce the managers of that institution to decide upon the former course. Between the investment of a pretty large amount of funds in the attempt to make the present establishment what a hospital for the insane ought to be, and throwing the same sum into the river, there would be, in our opinion, but little choice.

In allusion to defective training, in early life, as a cause of mental disorder, the report closes with the following beautiful effusion of the heart of a father and, in the best and noblest sense of the term, a *man* :—

"How important is it, then, that childhood and youth should be gently led, by a patient and loving help, both in play and at pleasant work, into innocent habits of the mind, and, in agreement therewith, into bracing habits of the body. For, so far as such conjoined habits become identified with the physiological life, they will combat, triumphantly, many a hereditary peculiarity, mental and corporeal; and they will be strong in vital power to resist the invasion of disease. More than this; becoming, in due time, subservient to the religious principle, in its legitimate works of sincerity and justice, they will surely generate a purity of purpose in the discharge of domestic and all other duties; and thus, by exempting the mind from an abiding presence of selfish thought and inclination, they will be a safeguard against most of the secondary causes of disordered ideas and emotions, of incoherent speech and impulsive actions. So may the human mind, apart from the blighting power of unavoidable disease and accident, gradually work out its emancipation from the infirmities of a natural temperament; so can it earn the faculty of living in freedom according to reason."

Statistics from the report for 1850:—

	Men.	Women.	Total.
Patients at the beginning of the year	64	69	133
Admitted in the course of the year	25	15	40
Whole number	89	84	173
Discharged	21	11	32
Remaining at the end of the year	68	73	141
Of those discharged, there were cured	8	6	14
Died	5	1	6

Seven cases of mania à potû were also received, and discharged cured.

Dr. Fonerden calls the attention of the President and Board of Visitors to the necessity of providing additional accommodations for the insane, in the State of Maryland. The only argument adduced is the impossibility of receiving all the applicants at this institution. "It may now happen," says he, "that one or two months will elapse before another public patient can be received. In the mean time, urgent applications will continue to be made for the relief of the public and of families, and for the protection of the destitute insane, whose cases, in most of the counties, are dependent upon this institution for custodial arrangements. On the day of writing this, applications have been made for the admission of three patients at the expense of the counties."

P. E.

Art. XVIII.—*Obstetrics: The Science and the Art.* By Charles D. Meigs, M.D., Professor of Midwifery, and the Diseases of Women and Children, in Jefferson Medical College, at Philadelphia, etc. etc. Second edition, revised. With one hundred and thirty-one illustrations. Philadelphia, Blanchard & Lea, 1852: 8vo. pp. 759.

The work of Dr. Meigs, whether as a treatise adapted to indoctrinate the student into the science and the art of obstetrics, or as a table-book, for frequent reference on the part of the practitioner, has been already assigned, by the almost unanimous verdict of the profession, a very high rank among the numerous kindred works received as authoritative in this country and in Europe.

In the general correctness of its theoretical teachings, and the fulness, explicitness, and excellence of its practical directions, throughout the whole scope of the science and the art of which it treats, the volume before us will certainly bear a favourable comparison with the most esteemed of the obstetrical treatises in common use, while, in some respects, it appears to us better adapted than many of them for the instruction of the student and young practitioner.

The opportunity afforded by the demand for a second edition has been made use of by the author for introducing many improvements in the matter and style of the treatise, considerably augmenting the text, recasting some parts and cancelling others; while the literary execution of the whole has been subjected to a careful revision.

It is not our intention to enter upon an examination of the several additions and revisions that have been made in the present edition of Dr. Meigs's work, nor do we esteem this necessary, as it will, of course, very speedily find its way into the hands of the majority of American practitioners, to whom we can, with much confidence, recommend it, as embodying a very full exposition of the doctrines and practice of obstetrics—a sure guide to the learner, and, at the same time, a safe counsellor to the young practitioner in cases of doubt and of difficulty.

We confine our remarks, however, to that portion of the work which treats strictly of obstetrics—the science and the art. In the sections appropriated to the consideration of the pathology and therapeutics of the female, there are many important points, in relation to which we entertain opinions very different from those advanced by the author; opinions which we believe to be based upon accurate and accumulated observations—our own, as well as those of other practitioners in this country and in Europe.

The views advanced by Dr. Meigs in relation to puerperal fever—its nature and its treatment—though enforced with a plausibility and earnestness which would almost persuade us to receive them as true, are certainly calculated to lead the young practitioner into error. While it is admitted that peritoneal inflammation, or metritis, occurring in the puerperal female, though a disease, when neglected in its earlier stage, most dangerous and rapidly fatal, has nothing specific in its character, and may be disarmed of its violence, in a large number of cases, if attacked at its onset by bloodletting and other active antiphlogistic remedies, still numerous incontestable facts prove, beyond the possibility of doubt, that the parturient female is also liable to be attacked by a fever, which is peculiar in its character, communicable from the sick to the well, and by the intermediation of those who have been in immediate contact with the sick, and which holds a very close relationship to certain forms of erysipelas. This fever is in all cases attended by peritonitis, metritis, or uterine phlebitis; but there exists also, from the onset, a peculiar morbid element, a diseased condition, probably, of the blood, which gives to it a specific character, and peculiar malignancy. This form of puerperal fever most commonly occurs as an endemic. While it is scarcely controllable by any course of medication, experience has shown that in its treatment direct depletion by the lancet, as well as the other antiphlogistic remedies, are inadmissible.

As a history of the ordinary forms of puerperal peritonitis and metritis, we must admit the entire correctness of the account given by Dr. Meigs of what he terms child-bed fever, and recommend it to the closest attention on the part of the student and practitioner. Nor do we feel inclined to dispute the general outlines of the author's views in respect to its pathology, or to call in question his directions for its treatment. The objection we make is that, in treating of the subject of child-bed fever, Dr. Meigs has not covered the whole ground—that he has omitted an important form of puerperal fever, marked from its very onset by the most unequivocal indication of adynamia, and in regard to which neither his pathological nor therapeutical views are true; and that, by this omission, they who consult his work for instruction will be misled, by supposing that all cases of child-bed fever consist simply in inflammation of the womb or of its veins, or in inflammation of the peritoneum, and that free and early blood-letting is the only remedy upon which any reliance in their treatment can be placed; and though experience and careful observation will not fail to convince them of the inaccuracy of both propositions, it must, nevertheless, be at the expense of no little mortification, and professional disappointment.

In his pathology of cyanosis neonatorum, Dr. Meigs, we believe, stands alone; and certainly in opposition to all the recorded facts derived from morbid anatomy. In evidence of the correctness of the views advanced by him, he adduces a series of cases to show that cyanosis may be cured by placing the infant in such a position as he supposes will cause the weight of the blood to force down the valve of Botallus upon the open foramen ovale, and thus prevent the direct passage of the blood from the right into the left cavities of the heart. That in many cases of partial asphyxia occurring in children from causes unconnected with organic lesions of the respiratory or circulatory systems, almost immediate relief will be derived by causing the patient to assume the position indicated, is certainly true; it is even true, that in unquestionable cases of true cyanosis, all the prominent symptoms will frequently be very considerably relieved for a time by the same means; this does not prove, however, that the relief in these instances is caused by the closure of the open foramen in the septum between the two auricles of the heart. Such an explanation is a mere hypothesis, unsupported by any direct evidence; and in pathology, one hypothesis cannot be received in proof of the correctness of another.

D. F. C.

Art. XIX.—*The History, Diagnosis, and Treatment of the Fevers of the United States.* By Elisha Bartlett, M. D., Professor of Materia Medica and Medical Jurisprudence in the College of Physicians and Surgeons of the University of the State of New York, etc. etc. Third edition, revised. Philadelphia, Blanchard & Lea, 1852: 8vo. pp. 595.

As a faithful exponent of the present state of public opinion in relation to the history, pathology, etiology, diagnosis, and treatment of the fevers of this country, the work of Dr. Bartlett becomes a valuable if it be not an essential addition to the library of every physician, and we are pleased that the profession have so far endorsed this opinion as to require the issue of a third edition, thus giving the author an opportunity, of which he has industriously availed himself, to incorporate in the different chapters of the treatise whatever additions recent investigations have added to our knowledge of the several subjects discussed.

In treating of the fevers of the United States, Dr. Bartlett has not contented himself with a mere synopsis of the facts and opinions of the leading writers on the subject, but has carefully analyzed and compared their various observations and deductions, and has selected such only as appear to him to present most clearly the indications of accuracy and truth.

Dr. Bartlett strongly asserts the specific character of each of the four forms of fever described by him, namely, the typhoid, the typhus, the periodical, and the yellow fever; each of which, in his opinion, differs essentially from all the others. That ordinarily the several forms of fever alluded to present each well-marked distinctive characters is unquestionably true, and yet all are aware that cases do occur in which the diagnosis is by no means so easy. Protracted remittents assume, not unfrequently, very much the characteristics of typhoid fever, if they do not in fact occasionally run into the latter. We have repeatedly seen the phenomena of typhoid and typhus fever so intimately blended in the same patient as to render it impossible to determine under which of these forms of febrile disease he was actually labouring, while the more intense grades of bilious remittent fever are often with difficulty distinguished from yellow fever.

However, Dr. Bartlett has certainly the weight of medical authority in favour of the views advanced by him upon this subject. We ourselves *only doubt* the specific difference of the several forms of essential fever, having seen no incontestable evidence by which this difference is established; but we, at the same time, candidly admit, that we have no positive facts to prove that these several forms are mere modifications of one and the same disease. D. F. C.

ART. XX.—*Homœopathy: An Examination of its Doctrines and Evidences.* [Fiske Fund Prize Dissertation.] By WORTHINGTON HOOKER, M. D. New York, 1851: 12mo. pp. 146.

On the Fallacies of Homœopathy, and the Imperfect Statistical Inquiries on which the Results of that Practice are estimated. By C. H. F. ROUTH, M. D., M. R. C. S. London, 1852: 8vo. pp. 85.

DR. HOOKER's essay is essentially the same with the chapter on homœopathy in his work entitled "Physician and Patient," and which has been reviewed in this Journal. It is intended, we presume, even more than that work for popular instruction. It contains much logic and much sarcasm directed against the infinitesimal nonsense and the psoric absurdities of Hahnemann's followers, much more than was necessary for annihilating all that is really vital in these vexatiously minute parasites on the body medical. We cannot congratulate the accomplished author on his success in hunting such small game; the trophies of the chase are hardly worth the bringing home.

The real *doctrine* contained in the homœopathic system is quite as independent of these fooleries as the latter are of one another. The *practice* rests upon a tripod, of which the three legs have no physical or metaphysical connection whatever, and which are ludicrously unequal in size, so that the fabric, taken as a whole, tumbles to pieces upon the slightest touch. Not so the homœopathic doctrine. It was conceived and matured before the quackish instincts of Hahnemann felt that it might be made profitable by linking it with a trade, an idea which may very naturally have taken possession of him during his residence among the money-changers of Leipsic, where his brazen image now appropriately adorns the market-place. "Psora" and "globules" were spells invented to lure the silly mob who could not be stirred by any merely scientific charm. Had the formula of *similia similibus* been propounded by an honest physician, i tmight have excited discord, and, like the Brunonian and other hypotheses, even have arrayed the medical profession in opposing camps. Like these, too, it would more speedily and certainly have achieved whatever good it was capable of. But while by itself it was merely a controvertible proposition, it became the scoff and jest of the medical world, by being linked with propositions intrinsically preposterous and absurd.

Hahnemann tells us that homœopathy was the result of his own reflection and observation. It may have been so; but he was certainly not the first who entertained the like notion of medicine. Dr. Hooker quotes from Stahl a passage which explicitly contains the homœopathic doctrine: "The received method in medicine of treating diseases by opposite remedies, that is to say, by medicines which are opposed to the effects they produce, is completely false and absurd. I am persuaded, on the contrary, that diseases are subdued by agents which produce a similar affection—burns by the heat of a fire to which the parts are exposed; the frost bite by snow or icy cold water; and inflammations and contusions by spirituous applications." Nor was Stahl a whit less arrogant in his pretensions than the completer of his doctrine: "What I write," he exclaims, "the grace of God has taught me;" and the "sage of Cœthen" allows of no compromise between his dogma and other doctrines, as if Nature possessed but one possible means of achieving her purposes.

In his zeal to expose the folly of the homœopathic system, Dr. Hooker goes, we think, beyond the limits of sound reasoning; in his legitimate aversion to accepting as an exclusive dogma the *similia similibus curantur* of Hahnemann, he seems inclined to subscribe to the equally exclusive *contraria contrariis medentur* of Galen. He, therefore, attempts to explain away the illustrations which the homœopathists, and before them Stahl, have cited in support of the former doctrine. According to him, the application of cold to restore the vitality of a frosted limb is not an illustration of the homœopathic principle. A limb that is frozen has lost its heat, and is to be restored by the communication of heat to it, says Dr. Hooker; and if this be done by snow or ice, the author contends that the cure is effected by heat and not by cold. Such a distinction strikes us as not very logical. Unquestionably, cold relieves the ailment which cold has produced. So, too, of another illustration. Heat relieves superficial burns. But Dr. Hooker thinks that this "is not an example of *like* curing *like*, but of *same* curing *same*, which is quite another thing." The distinction, we confess, eludes our comprehension. But if this illustration be unsatisfactory, surely the plan of treating burns by stimulants, according to Kentish's method, is open to no objection as an illustration of homœopathic cure. But our author thinks that, unless turpentine were actually capable of producing the condition of the skin it is alleged to cure, the method is not homœopathic. This, we conceive, is scarcely fair. A superficial burn may be cured by holding it to the fire, by turpentine, by ice, or by cold water, by lime-water and sweet oil, by raw cotton, &c. It will not be pretended that the mode of action of the first two applications, and those of the following ones, are identical. Will not every one allow them to be opposite? The former is the homœopathic, the latter the allopathic method; and either is appropriate, even in the identical conditions supposed.

The illustrations here presented are amongst the most striking which the subject affords, and, as has been seen, were adduced even by Stahl; but there are many others made familiar by every day's experience. Emetics are constantly given to relieve nausea and slight vomiting, by inducing a complete evacuation of the stomach; purgatives cure the diarrhœa excited by irritating ingesta, and not that only, but to arrest the discharges of dysentery; alcohol cures delirium tremens; nitrate of silver suspends urethral and other inflammatory discharges; blisters arrest erysipelas, &c. In all of these, and many analogous instances, the remedy has the faculty of producing in the healthy state a condition analogous to that it is capable of curing in a state of disease. Such examples avail no more to demonstrate the truth of the homœopathic theory, than the more numerous and familiar facts of daily experience warrant the adoption of an exclusively allopathic theory. Natural truth is no more to be pressed into the artificial formulæ of scientific systems, than the varied, graceful, and ever-changing types of living beings can be represented by mathematical diagrams. Science is not in systems, but systems are artificial enclosures in the field of science. Truth lies without as well as within them. The pretension of Hahnemann to limit the power of medicine in curing disease to a certain, and that rather an exceptional mode of action, was neither more nor less than has been done by medical philosophers from Galen to Liebig. Had he done no more than this, he might have effected real good by enlarging the limits of our knowledge. But when he put forward as essential parts of his system the inane, absurd, and wicked doctrines of infinitesimals and psora, the man of science disappeared behind the mask of the charlatan, and the medical profession instinctively shrank from all communion with a convicted impostor. In this case, as in that of a still more famous quack, there is no reason why we should not accept what may be true in the teachings of Hahnemann, as we have adopted what was true in the ravings of Paracelsus. Perhaps, too, the best antidote to the gross extravagances of the latter is to be found even in the subtle and shadowy unrealities of the former. The question, the capital, the vital question is, *what* will cure disease? Once settled, we may inquire *how* is disease cured? Till the former question is decided, the latter is a conflict about systems, a mere war of words, never ending, still beginning, and apparently as far from a solution now as it was two thousand years ago. If the facts of therapeutics really admit of being arranged in two classes, according to the likeness or unlikeness of the natural effects of remedies to the diseases they cure, science can but gain by this truth being known. Its value would be none the less because a portion of it formed part of the system of a notorious charlatan of the nineteenth century. Posterity would smile at its rejection, upon that ground, by a generation that piques itself upon being philosophical. But, admitting the occasional application of *similia similibus* to the phenomena of therapeutics, we must be careful lest the doctrine seduce us into a too general application of it, lest we elevate the exception to the dignity of a rule. Even as a matter of medical faith, it were well for this point to be clearly apprehended. Otherwise the weak-minded might be seduced into believing a revolting heresy, and the weak in conscience might find in our restricted and philosophical assent to a theory, an excuse for all the deceit and crime which are in practice associated with subscription to the theory by its exclusive partisans.

Dr. Routh's essay attacks homœopathy from a scientific position. After exposing, as so many others have done, the arithmetical absurdities of the infinitesimal calculations, and the bad grace with which it is defended by some of its less ignorant and more honest promoters, and further, the knavish practice of concealing under the form of innocent-looking globules, large, dangerous, and even fatal doses of the vegetable alkaloids, the author devotes himself to an examination of the statistical returns which are relied upon, when reason fails, to confirm the faith of homœopathic patients, and, perchance, practitioners too. He has taken a great deal of unnecessary trouble to show that, all other circumstances being equal, the mortality of a given disease varies greatly in different countries, and that, consequently, such rate of mortality is not by itself an index of the value of the treatment employed. This element would certainly be one of weight and value in comparing accurate and trustworthy statistics proceeding from several countries; but it ceases to have any value so soon as a portion of the statistics are proved to be false. The jurisdiction of the case is changed; it must be transferred from the court of science to the criminal sessions, where the defendant, if guilty, not only will lose his cause, but be branded with infamy.

Passing over, then, the very interesting illustrations of the power of the imagination to cure disease, when appealed to boldly and confidently, we come to the more important part, in which the fallacy of homœopathic statistics is exposed. The statements of mortality in the homœopathic hospitals are shown to be between seven and ten per cent., on an average, lower than in medical institutions of the same kind; and are also shown to rest in part on the very convenient method of excluding all moribund cases from the tables of the former. The cases, too, in homœopathic and medical hospitals are not identical. The author relates, of his own knowledge, that in Fleischmann's Hospital, at Vienna, the serious cases are few and far between; the milder cases, on the contrary, of frequent occurrence; and he gives a numerical statement of a large proportion of the diseases which figure in the list of admissions, many of which require no active treatment at all, and not one that is ever fatal by itself. The proportion of cases of phthisis received into hospitals generally may be inferred from Dr. Routh's instances to vary between 4 and 9 per cent., while in two principal homœopathic institutions they do not exceed 1.6 per cent. Besides, in Fleischmann's institution he has the sole control over the admissions, and there is no check at all upon his diagnosis. It is remarkable, too, as showing how mild in general are the cases received into homœopathic hospitals, that they receive a very much larger number of patients in proportion to the number of beds, than medical hospitals do. The author follows the statistics of homœopaths in different diseases, and proves conclusively that there is probable ground for believing the cases of diseases to be selected and their diagnosis wrong. His mode of treating the subject does not allow of much condensation; and we, therefore, conclude this notice of his laborious and minute comparisons, by transcribing a part of the general conclusions at which he arrives:—

In the homœopathic cures effected, globulism is absolutely for nothing; and the practitioner who would attribute such cures to globulism must be considered as either full of simplicity, or a friend to quackery; but they are due—

1. To the influence of the mind on the body, through the voluntary or emotional systems.
2. To the *vis medicatrix naturæ.*
3. To excellent dietetic regimen.
4. To allopathic [medical] treatment surreptitiously conjoined. And, secondly—

1. That in many cases the homœopaths are inexact and inaccurate in their diagnosis.
2. That, therefore, their statistical returns are in many cases falsified.
3. That they allow nothing for the different and varied circumstances under which different patients are placed, as type, comfort, locality, idiosyncrasy, &c.
4. That their comparisons with allopathic [medical] practice are not to be depended upon.

A. S.

Art. XXI.—*Lectures on the Principles and Practice of Surgery.* By Bransby B. Cooper, F. R. S., Senior Surgeon to Guy's Hospital, &c. Philadelphia, Blanchard & Lea, 1852: 8vo. pp. 771.

These lectures were originally delivered to the clinical class of Guy's Hospital, London. They are now republished, with some additions, and after a careful review by the author, as they at first appeared in the columns of the *London Medical Gazette;* they do not, therefore, seem to call for any lengthened notice at our hands.

Mr. Cooper disclaims, in his preface, the intention of presenting the book to the profession as a systematic treatise on surgery. He says, "It is not without mature consideration that I have determined upon publishing the present volume; but I have come to the conclusion that, as its contents are of a practical character, embodying the experience of twenty-five years, during which time I have occupied the position of Surgeon to Guy's Hospital, it would be found useful, not only to the student, but also to those who have entered upon the practice of their profession. My object has been to furnish a useful compendium of surgery, in which the student may meet with a clear account of the practice of that science, established not only on my own experience, but likewise upon the best acknowledged authorities."

The chapters referring to special surgical diseases and injuries are preceded by several which relate to general pathology, viz.: there is one upon the *blood;* another upon the *bloodvessels* and *absorbents;* a third upon *constitutional irritation;* a fourth upon *inflammation.* And subsequently the topics which are commonly embraced in works of this kind are treated of as much in *extenso* as the limits of the volume permit, and these are unusually wide. Thus thirty pages are devoted to diseases of bone: twenty-three to those of joints; fifty-six to fractures; between forty and fifty to dislocations; two hundred and sixty to the surgery of the different regions, &c. &c.

From the examination which we have bestowed upon the different chapters, we have no hesitation in expressing the opinion that they contain much which will reward the consultations of the practitioner, particularly in the purely practical questions. For, as it were only reasonable to expect from the connection which Mr. Cooper has maintained with so large a hospital as Guy's, and for so many years, the book is filled with the results of his personal observation upon almost all the affections which a surgeon can expect to meet with; and numerous individual cases are cited in every chapter, to illustrate peculiarities of symptoms, or to enforce the propriety of a particular treatment. But in matters which involve the scientific rather than the practical knowledge of the author; in questions of pure pathology, the book cannot be regarded as an exponent of modern views.

Thus, in the chapter on *Diseases of the Joints*, it is stated, at p. 256, in speaking of *ulceration*, as it is usually called, of the articular cartilage: "If the synovial membrane be the source of the altered action, the cartilage desquamates in the same manner as the cuticle separates from the true skin. I do not apply the term ulceration to this action, as the usual appearances of ulceration do not manifest themselves, such, for example, as the presence of vessels conveying red blood; but I believe the redness in such cases proceeds from the bursting of the bulbous extremities of the capillaries, so that the blood is permitted to pass at once into the canals ordinarily receiving only those of its constituents which are necessary to the nutriment of the structure; but it sometimes happens that, under the influence of disease, the capillaries prolong themselves into the canals under the form of distinct bloodvessels." We need scarcely point out the fallacy of these opinions: the merest tyro in pathological and physiological studies knows that the *bursting* of bloodvessels gives rise to ecchymosis or other more serious hemorrhagic effusions, according to the size and character of the vessels; and that the nutrition of extravascular tissues is effected by imbibition, without the aid of distinct *canals* for the transmission of the plasma. Again, on the same page, Mr. Cooper speaks of the points or patches at which the articular cartilage has been removed in consequence of inflammation of the articular face of the bone, as becoming filled by portions of synovial membrane, which are prolonged inwards, as it were, from the edges or circumference of the cartilage. The membrane thus abnormally present becomes highly vascular, and was regarded by my late colleague, Mr. Key, as an apparatus for the absorption of the cartilage," &c. But the more recent observations and experiments of Mr. Goodsir, and Dr. Redfern, have demonstrated the fact that the vascular membrane spoken of as appearing upon these points does not belong so much to the original synovial membrane, but that it is a new product, an adventitious fibrous tissue. And, in fact, a careful examination of the papers of Mr. Key, published in the 18th and 19th volumes of the *Medico-Chirurgical Transactions*, will show that this author himself was aware of the existence of the false membrane, and admitted that the vascularity in question was seated in it in many of the cases examined.

We might cite numerous other passages from different chapters of Mr. Cooper's volume, which would establish more generally the truth of our opinion as to the inaccuracy of very many of the pathological doctrines advanced or adopted by the author. But the limits and intention which we have assigned to ourselves in this notice will not admit of our longer dwelling on this point.

The contents of this volume were originally given to the profession in oral lectures, a mode of committing one's self to the public which is exceedingly likely to involve one in numerous difficulties, unless the lecturer has complete self-possession and is accustomed to the duty. One of these faults is apparent in Mr. Cooper's lectures; we allude to the contradictory opinions which he expresses concerning the same fact or question. Thus, in the chapter on Gunshot Wounds, he says, at p. 96: "The wound made by the entrance of the ball is small, and its lips are inverted, discoloured, and valvular, while the opening through which the ball has made its escape is much larger, with an everted and ragged edge;" while at p. 99, the following sentences occur: "Many different statements have been made respecting the appearance and comparative size of the openings made at the entrance and exit of the bullet. It has been said, that the hole by which it enters is smaller and cleaner than that by which it leaves the body, which is ragged and more gaping. This does not, however, seem to be correct; the opening by which the ball enters appears to be generally somewhat the larger of the two. But, in fact, there is so little difference between them that, unless the direction of the shot were previously known, it would be impossible to say by which opening the ball entered, or by which it left the body." And there are opposing statements of the same kind which we need not quote. Such discrepancies must have crept into the lectures without due reflection, and have been overlooked in the subsequent revisions which these underwent preparatory to their publication first in the *Gazette*, and subsequently in the present form. But though they may be acknowledged to be inadvertencies, they are not the less calculated to mislead and perplex young readers, and therefore they constitute a blemish in the book.

Another defect noticeable in Mr. Cooper's work, and it must be conceded to be a very serious one, is the frequent slurring over of important topics, and the omission of numerous others. This deficiency, like that just mentioned, is undoubtedly to be ascribed to a want of proper method and of due reflection in the enunciation of his lectures, errors which subsequent revisions preparatory to publication should have corrected. We take as illustrations of these imperfections, the following examples, almost at random from different parts of the book. Mr. Cooper says that the fracture of the lower portion of the radius is very frequent, forming almost a third of all the fractures of the bone. And in consideration of this circumstance, as also of the importance of the integrity of the forearm, and the necessity of a correct diagnosis and a proper treatment, it were proper to expect a somewhat detailed account of this injury in reference to all important points. But the whole subject is discussed, or rather passed over, in the most unsatisfactory and unsurgeon-like manner. We will quote the whole of the author's remarks with reference to it. "Fractures of the lower part of the radius are often misunderstood, and may be taken for incomplete dislocation of the wrist; but the power of restoring its normal conformation by slight force, together with the crepitus, is sufficient to distinguish this accident from dislocation.—The following is a case of fracture of the lower portion of the radius: Janet Westrook, æt. 68, was pushed down in the street, falling forwards; on thrusting out her hand to save herself in the fall, it came violently in contact with the curb-stone, the consequence being fracture of the radius about two inches above the styloid process. She was immediately brought into Guy's Hospital. The swelling being but inconsiderable, the nature of the accident was ascertained at once. The usual symptoms of fracture of the radius were all present, viz.: fixed pronation of the hand, diminished width of the forearm, from the approximation of the fractured extremities to the ulna, and the rotundity produced by the displacement of the muscles and tendons of the interosseal space. The limb was put up in the ordinary way, the hand being left pendent. In the course of five weeks the woman left the hospital quite recovered, and with perfect motion of the radio-ulnar articulations." These sentences comprise the whole of the author's observations concerning the symptoms and treatment of this fracture, excepting that, in speaking of treatment of fractures of the forearm, he says, "When only one bone is broken, the treatment does not differ from that just described, excepting that in fracture of the lower part of the radius, the hand should be more bent inwards towards the ulna, and kept in that position during the progress of the cure."

Again, in the chapter on diseases of the bladder, *inflammation* of that organ occupies only half a page.

Such faults as these which we have alluded to might easily have been avoided by a surgeon of Mr. Cooper's large professional experience, and daily observation of the deficiencies and perplexities of students, as well as of practitioners, whose age and position have not been so favourable to the acquisition of practical knowledge as his own.

But though the work does not realize the expectations which the reputation and advantages enjoyed by Mr. Cooper would justify, still the reader will find that it contains a great deal of very judicious and valuable advice concerning the treatment of surgical diseases. F. W. S.

Art. XXII.—*An Essay on Organic or Life Force.* By J. H. Watters, A. B. Philadelphia, Lippincott, Grambo & Co., 1851: 8vo. pp. 36.

This essay was prepared as an inaugural thesis for the degree of Doctor of Medicine in the University of Pennsylvania. It is a production in every respect creditable to its author, indicating a mind adapted to close inquiry and to a careful investigation of the phenomena of the living organism, and of their causes and results, so far as these can be made the subject of observation, or may be inferred by cautious analogical reasoning.

The subject of the essay is a most interesting and important one; a correct appreciation of which would divest physiology of many of its present obscurities and apparent discrepancies, and prepare us for the study of the pathological conditions of the human organism with a far better prospect than has as yet been afforded us of arriving at a clear conception of their nature and causes, as well as of the means adapted for their prevention and removal.

Discarding the once universally received doctrine of an independent vital principle by which organization was supposed to be produced, and which, by a constant control, direction, and modification of the influence exerted upon organized matter by the several physical forces to which it is constantly subjected, gave rise to all the vital phenomena, from the simplest to the most complex; repudiating this ancient hypothesis, and the equally untenable one by which the so-called nerve force is substituted for the vital principle, many modern physiologists have been inclined to view vitality as nothing more or less than the result of organized matter acted upon by the ordinary physical agents, in precisely the same manner in which they act upon that which is unorganized—the difference in the effects being due entirely to the different arrangement and combination of the particles of matter in the two cases.

This latter is, in substance, the doctrine advocated by the author of the essay before us, and he has with great acuteness adduced a series of arguments in its support, the force of which, if the doctrine alluded to be confined strictly to an explanation of the phenomena of organic life, the advocates of a living principle, equally with those who insist that every living act is the result of nerve-force, will find it extremely difficult to evade.

"An organism," according to Dr. Watters, "is but a machine, by means of which the Creator takes advantage of the laws with which he has endowed matter to effect certain objects which are the designs of God, and not of man. It would be of no advantage to know whether living beings were the object for which matter was created with its existing laws and properties, or whether there was no such object in the Creator's mind; and this is not a subject of investigation, though it may be of speculation. It is enough for us to know that the organism is a machine which acts in perfect accordance with the laws of matter, and is not overruled by some unknown independent agent, 'the vital principle;' that life is the necessary result when the organism is placed under the proper conditions; and that this result grows out of the particular combination of the matter constituting it."

The main position laid down by the author, and in support of which a number of cogent arguments are adduced, is "*that life or the actions of an organism are produced by forces which are evolved in the decomposition or decay of that organism.*" The term organism being made to include the granules or germs, though apparently formless, from which cells are developed under proper conditions.

"When we look," remarks Dr. Watters, "into the organic world, it is observed that the natural tendency of all organic matter, under the influence of the external conditions of life, is to resolve itself into simpler compounds; but in the living organism there is an action directly contrary to the observed natural tendency. It was, no doubt, from this *apparent* reversal of the laws of matter, that first originated the idea of an independent agent residing in the system, whose office it was to overrule these laws, and give direction to vital actions. It is, no doubt, from this, that even to the present time, the 'vital principle' enters into the explanation of all vital phenomena. The attention of physiologists has been almost exclusively directed to the building up of the organism. Disintegration has been thought worthy of attention only as it is modified by this 'vital principle,' or, as it makes continued nutrition necessary. As decay is common to all organic matter, the attention has been diverted from this to organization, which is peculiar to living beings; and nutrition is looked upon only as a means of 'counteracting' the 'destructive' tendency to decay, rather than as affording a necessary condition to continued decay. Though we cannot conceive the existence of a living being without change, yet this tendency to change has been considered destructive, rather than essential to life. It is thought that it will appear from what is to follow, that the arrest of the natural laws of matter in a living organism is more apparent than real; that vital actions are as much the result of these natural laws as are death and decay; and that death and life have the relation to each other of antecedent and consequent. Though death is so common and so *natural*, that we are accustomed to look upon it as a matter of course, yet it is no less difficult to tell why we die than why we live; both are but evidences of the Creator's will. We are constantly dying while we are living, and to arrest decay would be to arrest life.

"While Dr. Carpenter ridicules the theory of a 'vital principle,' he seems to fall into greater difficulties than he has obviated, when he offers as his theory the following: *The dormant vital properties originally stamped upon matter capable of assimilation are developed by the very act of organization.* He gets over the objection which would naturally arise to this theory, that life force must have existed *prior* to the *act of organization*, in a very summary manner; as also, the objection arising from the *universal* tendency of organized matter to resolve itself into simpler, rather than into more complex compounds. While the views contained in this article are directly opposed to the theory of a 'vital principle,' they are equally opposed to the theory that *matter was originally endowed with vital properties, which are developed by the act of organization.* These views are, that in an organism, the act of resolution of a complex into simpler compounds, evolves forces which give direction to chemical and organic actions; and, as life is the result, the terms organic, germ, or life-force may be employed to indicate the resultant of these forces. This force is produced when the conditions of life—the germ, air, heat, and a fluid plasma—coexist. If the above proposition be true, life is not derived from the parent, but originates in the changes which take place in the germ itself. It has been the doctrine of some that *germ-force* is derived from the male parent; of others from the female; while others again held that it is produced by both parents at the same time, and by the same act that the germ is. But there are reasons to believe that *germ-force* is no more derived from either parent than galvanic force is derived from the individual who constructs a battery."

The first series of arguments advanced by Dr. W. in support of his general position are, to show that, according to the universal law of chemical action, the properties of an organism could not be developed except by *disorganization;* that when it is said that forces are evolved by the decay or oxidation of the organism, entirely distinct from the chemical compounds that result, nothing is assumed which is not exemplified in every chemical action which takes place, whether in the organic or inorganic world; and, to point out the fact that in organic chemistry, oxidation evolves a force which produces deoxidation; and thus to show, if possible, that disorganization, that is the oxidation of the organism, may evolve forces which produce organization.

"Wherever there is life," urges the author, "there is decay, and in health, decay is always in proportion to the vital activity. This shows some necessary connection between the two, and a possibility that there may be some truth in the foregoing proposition. It may be said, if the proposition be true, there should be life wherever there is decay. But not so; if an acid be thrown upon zinc, oxidation takes place, but there are no electrical phenomena unless there be a peculiar arrangement of the zinc with another metal; so it is only under a peculiar arrangement, as in an organized structure, that decomposition and decay give rise to vital phenomena.

"There is no fact better established in physiology than, in the exercise of the animal functions, the *destruction* of the organ is directly in proportion to the activity of the functions. There can be no doubt but the final cause of the exercise of organic functions in animals is, so far as the *individual* is concerned, to supply and keep up the conditions for the exercise of the animal functions. Yet it is no less true in animals than in plants, that the exercise of *organic functions* in them is also attended with decomposition and decay in proportion to their activity. In the young, the tissues are soft, and decay is rapid, and the vital actions are correspondingly active; while in the old the tissues become more firm and permanent, and the vital actions are consequently less vigorous. In the former, the repair of injuries is rapid, and if the cause of disease be removed, the restoration to health is quick and entire; but in the latter, the structure is firm, decay is slow, the vital energies are correspondingly low, and if there be a restoration, it is tedious and often but partial. From the beginning of life to the end of it, there is a constant relation between decay and life action. It has been considered that decomposition of the muscular and nervous tissues results from their functional activity: if the proposition here advocated be correct, their functional activity results from decomposition and decay, or from forces evolved in this process. A machine of art acts more easily and with less friction when composed of a hard material; while in the organism, as the tissues become more firm the actions are less; hence this must be because there is less force to produce the actions; but there is a constant relation between the decay and the actions of an organism; hence it would follow that the destruction does not result from the action, but the action from the forces evolved in its oxidation. The relation preserved in health between decay and renewal is so constant that it cannot be believed a mere accident. As decay and renewal are directly opposite to each other, they cannot be dependent upon the same cause; hence, as the relation is so constantly preserved, the one must be dependent upon some condition afforded by the other. Now, as the natural tendency of the organism is to decay, and, as there could not be renewal previously to decay, it is most probable that decay affords the necessary conditions to renewal; that is, the very act which creates a necessity for renewal, also evolves the forces necessary for its accomplishment.

"The above proposition seems somewhat plausible, when we consider that the same conditions which are necessary to decomposition and decay, are conditions necessary to life. Under the very same circumstances we have life manifested in one organic compound, and nothing but destruction in another; while, without these circumstances, there is neither life nor destruction in either. Can this be because air, heat, and moisture are conscious existences, and have not the same tendency in the two cases? Can it be that they have in the one case a *deadly*, while in the other a *vitalizing* influence? It would seem not; although vital actions do result from the influence of these conditions in the one case, yet it would appear that this can only be effected through decay; for their tendency to *destroy* and *disorganize* must be the only way through which they exert their influence throughout the organic world. Take a seed, for instance; if it be preserved from the conditions of decay, it will remain unchanged for any length of time; but so soon as the influence of these conditions operates, life is manifested—an act of *organization*, which is directly contrary to the admitted natural influence of these conditions. It is not an object here to define the forces which produce vital action; admit if you please the existence of an independent 'vital principle;' or if you would rather admit that 'matter capable of assimilation was originally endowed with vital properties;' or let there be any hypothesis which may enter into the heart of man to conjecture, the argument is the same; that the forces which produce vital actions, be they what they may, are developed by means of the oxidation or decay of the organism, just as electricity, heat, and light are evolved by the oxidation of zinc. As the external conditions of life are the same as those of decay, the different results must proceed from difference in the substances acted upon; and as the tendency of these conditions is to produce disorganization rather than organization in *all* organic compounds, and as there is decay wherever there is life, decay must be a necessary antecedent to life. But an *organized structure* is so arranged by an Infinite Wisdom, that in it the very act of incipient destruction liberates a recuperative life-force, which, if there be a supply of nutriment, *renews* and builds up the structure, every particle of which is, in its turn, destined to *decay*, and thus acts its part to keep up the actions of the individual."

It is not our intention to follow our author through the various arguments he presents in support of his position—that vital actions are produced in an organism by forces which are evolved in the decomposition or decay of that organism—a mere synopsis of them would not give to our readers a correct idea of their full force and bearing. All that we desire is to furnish a general idea of the views advocated in the essay before us, and of the manner in which their truth is endeavoured to be sustained.

In treating of the condition of a seed before germination, Dr. W. remarks:—

"The phrase 'dormant vitality' is the received explanation at the present time; but I have attempted to show that there can be no such thing as dormant vitality, and, moreover, if there could, that the external agents could not *stimulate* it into action. It is contended that if there be forces in the seed, and there must be, these forces must be in action, though they may not produce action; and that the only way air, heat, and moisture, or any other agents, can produce action in the seed, is either by their additional force or by changing the direction of the existing forces, and thus disturbing the balance. The facts in the case are simply these: A seed may be preserved any length of time without undergoing the slightest change; but, when certain external agents are applied, life becomes manifest. The object is to interpret these phenomena, just as we would those which present themselves in any artificial experiment. This experiment, performed for us by nature, is brought forward in support of the proposition—*that life action is produced by forces, which are evolved*, or take a new direction, *in the decomposition of the organism*. The seed does not possess vitality, in any sense of the word, before germination; it does not even possess *life-force*, either dormant or in action, for life is only produced when it is under the influence of certain external agents, and, therefore, life-force is the resultant of forces as directed by the seed under the influence of these external agents. Therefore, we have life-force only under the cooperation of *all* the conditions of life; but its *components* have existed and been in operation since the foundation of the world, or the creation of matter. Now these *components* are not mysterious agents which never manifest themselves except in organized structures; but the very same forces which produce the *ordinary* chemical actions, when directed by an organism under the influence of these external agents, become the components of life-force. But organization *must be* produced by means of disorganization, because the natural tendency of an organized structure, under the influence of the external conditions of life, is to disorganization; and consequently, organization cannot be *directly* produced by the ordinary forces. But, as no means or ingenuity whatever could make gravitation *directly* elevate a weight, yet, as has been seen in the case of the inclined plane, it may be made to do so *indirectly*, by means of depressing a weight, which is its natural tendency; so no fortuitous circumstance or event could ever make the ordinary forces of matter *directly* produce organization, yet they may produce organization *indirectly* by means of disorganization, which is their natural tendency. From the foregoing considerations, therefore, it is concluded that life *originates* when the seed is placed under the proper conditions, through decay or oxidation, which these conditions naturally induce."

Hybernation the author believes capable of an easy and natural explanation, upon the supposition that life is produced by forces which are evolved in the act of decay.

"As the temperature, which is a condition to decay, diminishes, decay must also diminish; and as the decay of an organism is the means by which life-force is produced, the diminution of decay would diminish life-force accordingly. If the temperature be so much diminished as to arrest decay, life must consequently cease; not in part, but entirely. This state of *death* may continue indefinitely, so long as the external conditions are preserved. But with the return of heat, if the structure have not been destroyed, decay, and consequently life, commence again as in the original germ; and, whereas the animal was *dead*, it is alive again."

With the view of placing before our readers the manner in which Dr. W. applies his doctrine of the development of life-force to the explanation of the origin of organization, we shall extract the greater portion of his remarks on the subject of *Equivocal Generation.* Although the quotation is a long one, it will, we are persuaded, interest, and we hope instruct, all who will take the trouble to peruse it.

"Observation," says Dr. W., "has tended to establish this mode of generation, but it has been rejected upon theoretical views. Those who deny this ~~mode, say,~~ although the entozoa have no prototype in nature, yet germs taken into the system produce different animals, on account of the peculiar circumstances of their position. This is begging the question; for this is itself equivocal generation. That a germ is *necessary* to life is admitted and presupposed in the theory of equivocal generation; yet it has been accustomed to be considered equally absurd with *spontaneous generation.* Reasoning, *à priori*, from the proposition that life is produced by the decay of an organized structure in the presence of a fluid plasma, we are led to suspect this mode of generation, though there might be an inclination, at first, to confine it to plants and animals, consisting of a single, or a very few cells. But when it is considered that all animals and plants are made up of cells, and that the growth of the individual consists in the growth and reproduction, or multiplication of cells, our original suspicion might be somewhat extended. If it be true that the organism is not endowed with any vital principle, or force distinct from its own structure, then nutrition and generation—both equivocal and what is called regular—are involved in no greater mysteries than the ordinary chemical actions; but, upon the theory that there is a germ-force distinct from the forces derived from the matter constituting the germ, then, both regular and equivocal generation are equally inexplicable; for they both seem directly opposed to this theory. Admit it true, for a moment, that the germ derives a certain amount of life-force from its parents; now a force cannot increase of itself, and, if life-force increase with the growth of the individual from the germ, upon what does it feed? The quantity of matter of the body may be increased by additional matter taken in; so, if the force increase, it must be by additional force; but life-force does increase, else reproduction would involve the death of the parent. Now, if life-force be something peculiar and distinct from the forces of the matter that constitutes the organism, whence does the individual derive this additional force? The natural inference is, that it is not distinct, and is derived from the additional matter that becomes organized; and if the additional force be thus derived, why not the original force of the germ also? Hence, the very fact that there is reproduction in any mode whatever, is a strong argument in support of the idea that there is no agent at work in the organism distinct from the agents which produce the ordinary chemical actions; that it is the organism itself that makes the distinction. If it be the independent vital principle that determines the species and its constancy, there could be no deviation from the original type, for an offspring could not have a different vital principle from that which its parent had, and consequently, could not transmit one different from that which it received."

"In considering the above views of reproduction, it would be well first to notice some examples where each generation possesses a distinct individuality, while it is, at the same time, entirely different from that which preceded it—examples where every third, fourth, or fifth, or even tenth generation only, resemble each other, while each generation is distinct and independent. The development of the distoma from the egg is a good instance to illustrate this point. An animal is developed from the egg, named the *grand-nurse.* This animal gives birth to numerous other animals dissimilar to itself; these are called the *nurses.* These, in their turn, give birth to other animals not in the least resembling the generations preceding; these are the *Cercariæ.* The cercaria is metamorphosed into a distoma, and now, for the first time, we have an animal resembling those that produced the original eggs. Among the Aphides, it is only after eight or ten generations from the egg, that the perfect animal appears with the distinctions of sex. These examples are sufficient to illustrate the position, that the development of an animal from the egg is progressive—that the perfect state is arrived at, sometimes at least, through the successive steps of equivocal generations. Various inferences are deducible from these facts, in reference to the subject before us. The first is, that there may be reproduction without the union of the sexes. It is true, some have supposed that there was a superabundance of *sperm* in the original egg; that this, being taken up by the young animal, *vivified* germs produced by it; that the superabundance still existing, being taken up by these young animals, was similarly appropriated in the production of their young, and so on, for many generations. But this only shows how *facts* are twisted to reconcile them with theories. The simple facts would seem to indicate that there was no spermatic influence except in the original egg; that the grand-nurse itself affords conditions for the origin of the nurses; and that the nurse itself gives origin to the germs of cercariæ; that the distoma is developed from the cercaria; and that the union of the sexes in this state gives origin to the eggs. Again, upon the theory of a peculiar vital agent, there could have been but one in the egg; say this produces the grand-nurse, if you please; now the grand-nurse, possessing but one vital agent, gives birth to an immense number of nurses, of course, each possessing an independent *vital agent;* now, each one of these nurses, possessing but one vital agent, gives birth to an immense number of cercariæ, of course, each possessing an independent vital agent. Also, the more complex animals are composed of an innumerable number of cells or organisms, which are only dependent for their action upon those external conditions which life action in general is; but the original germ, from which the cells composing the complex animal were developed, could have possessed but one vital principle. The important question here is, where did all these independent vital principles come from? They could not be produced by the subdivision of the original one in the egg or germ-cell, supposing such a thing possible; for each successive generation is carried to a higher state of development than the former, which could not be the effect of a *part* of a *vital principle.* But suppose, for a moment, that a vital agent does exist in each of the cercariæ which are finally developed from a single egg, that they do originate in some way, no difference how; all these must be of the same *kind,* at least, as the one which developed the grand-nurse from the egg; for, if it were admitted possible for the vital principle to multiply indefinitely, it would still seem impossible that it should change its character. So, admitting the existence of a vital principle, it is necessary to admit also, that the peculiarity of the individual is not dependent upon *it,* but upon the peculiar organization of the germ itself; for, if the *same agent* produces at one time a *grand-nurse,* then a *nurse,* and then a cercaria, animals entirely different, the difference must necessarily result from the peculiarities of the material acted upon. Hence, though all animals have a single cell for their common origin, yet the peculiarities in the structure of the future animal, are entirely dependent upon peculiarities in the composition of the germ itself. The constancy of species, therefore, is not dependent upon the vital principle, admitting one to exist, but upon the constitution of the germ itself. Hence, the dumb agents which produce the ordinary chemical actions, when directed by the germ, could produce all the vital actions as well as an *intelligent* vital principle, if the exercise of *intelligence* is unnecessary.

"But it may be objected that the foregoing argument is irrelevant; for, we do not know the nature of the *vital principle,* and, therefore, should not argue upon it as if it were analogous to anything we do know. This objection would put a stop to all investigation; for it is always necessary to reason from the known to the unknown. Whatever it may be which produces life, it certainly does not only resist decay, but produces actual organization; therefore, it is a force. If it be a force, it must possess all the properties of force in general, and must be reasoned upon accordingly. As force cannot be created or destroyed, *life*-force, therefore, is but a peculiar combination of forces which have existed since the creation, as *organized* matter is but a peculiar combination of matter which has existed since the creation.

"Perhaps it would be well now to notice the development of vertebrate animals, and see what analogy exists between their steps towards maturity, and those of the distoma and aphides just considered. First, notice the formation of the germ itself. In the evolution of the spermatozoa, suppose that the 'parent-cells' are evolved immediately from granules which are secreted by the tubuli seminiferi; these parent-cells give birth to the 'vesicles of evolution,' and die themselves; the 'vesicles of evolution' give birth to the spermatozoa and die themselves. Thus, the development of spermatozoa from granules secreted by the tubuli seminiferi is precisely similar to the development of the distoma from the egg. The evolution of the ovum from the ovisac is the same. It is the received opinion that the germ-cell is formed by the union of the spermatozoa with the ovum. While this union gives origin to the *germ* of a new being, independent vitality existed prior to it, as is indicated by the evolution of the spermatozoa and the ovum. All this is just what would be expected, if we admit the proposition that *life-force is the resultant of the ordinary forces of matter as they are directed in the decay of the organism.* But our observations must not stop here; we now have the 'germ' of a new being. All animals and plants have their origin in a single cell. This germ-cell is not a miniature of the future animal; it has not a backbone with a spinal cord having a ganglionic expansion; it has not an alimentary canal, liver, kidneys, and a pulsating heart; it has not muscular and nervous tissues with organs of locomotion. Yet it is all that the parents contribute to the production of a new being, which, after a long series of progressive steps, acquires all the peculiarities of its species, having all the organs necessary to organic and animal life. The diversified cells which compose the various tissues and organs of the fully-formed animal, must be produced by equivocal generation, as they did not exist in the germ. While the *animal,* through its various changes, maintains its distinct individuality, its elementary structure is undergoing the changes of equivocal generation, just as if, in the evolution of the distoma, the 'nurses' should not separate, but continue together so far as to constitute but one individual, and the cercariæ, to which these 'nurses' give birth, should continue in the same individual and constitute part of its structure. Thus, the animal would undergo various metamorphoses; but would not at any time lose its individuality. So far as observation has gone, it tends to establish the view here taken; that the various changes which the embryo undergoes in its development, are due to equivocal generation of cells constituting it. An animal is a compound organism made up of tissues which are composed of cells. The animal, therefore, would change with the cells; these cells are very diversified in the fully-formed animal, but they all originated in a single germ-cell. Now each cell which enters into the composition of the most complex structure, is an independent organism as much as if it were separate; its actions are only dependent upon the same conditions that life action in general is. It is plain, therefore, that it is just as reasonable *à priori,* that the various cells composing a fully-formed animal should be evolved by equivocal generation, starting from the germ-cell, as that the distoma should be evolved by equivocal generation, starting from the egg; and, if we reject the theory of a peculiar vital agent, there is nothing, *à priori,* against either. The original germ only affords conditions for the *first* act; that act of the germ affords conditions for the next, and so on continually; so that there is a continual progression from the original cell to the fully-formed animal, each act affording the conditions for the next: 'the present is the offspring of the past and the germ of the future;' break one link in the chain, and the whole machinery is destroyed. Metamorphosis, therefore, is only the change of form which the individual undergoes on account of its elementary structure being changed by equivocal generation.

"If the above view be true, it is evident that the *material* determines the *form* as well as the vital actions. The *material* is all that the parents contribute to the production of the germ, and, consequently, to the production of a new being. Vitality does not *originate* with the germ-cell. The germ-cell is the *effect* of vital action; and vital action too entirely independent of the parents. The epithelial-cells of the tubuli seminiferi are *part* of the parent, but the material which they secrete is *independent;* and, though in this condition it appears formless, and does not show any sign of life, yet this is all the parent contributes in reproduction. The changes which take place after are entirely independent of the parent. When this secretion is under the influence of proper conditions, the 'parent-cells' appear which commenced with the change of *material* produced by these conditions; the forces thus evolved carry the *interior* to a higher state of organization. When this material thus prepared is under the same influences, life action and cell growth commence in it; and 'vesicles of evolution' are produced. These prepare the material from which the spermatozoa are developed. The spermatozoa and the germinal vesicle of the female mingle their contents, which *material* is the foundation of a new being. This view is confirmed, not only by the fact that the ova of some animals are fecundated after their expulsion from the body, but also by the fact that the spermatozoa of some animals are developed after the ejection of the seminal fluid. A good illustration is also found in the development of epithelium-cells from a formless material—the *basement-membrane*. It is true cells are sometimes partially developed within other cells, but the parent-cells only furnished the material or germs and a nidus for their early development, as the womb of the mammal only furnishes a convenient place for the early development of its young.

"But not only is *reproduction* accomplished by means of equivocal generation, but it would seem that nutrition is also. Formerly, all actions which take place in the system were referred to the *vital principle* to the exclusion of chemistry; now, certain actions, such as digestion, are found to be chemical, and straightway their vitality is denied. Vitality is not incompatible with chemistry, and why may not the same action be *both* vital and chemical? An action is no less chemical because it takes place in the body; it is no less vital because it can take place out of the body, when those conditions which are supplied in the body are supplied out of it. Digestion is now considered *purely* chemical; this does not prove that it is not at the same time *purely* vital. If the proposition be true, that *vital actions are produced by forces which produce the ordinary chemical actions, as they are directed in the decay of an organism, all* vital actions are *purely chemical* actions. As the same force which gives motion to machinery of man's construction, as the water-wheel, the clock, &c., in the hands of the Almighty causes the apple to fall to the earth, and regulates the planets in their orbits; so, the same forces which cause the ordinary chemical actions, in the laboratory of Nature, give life to the lichen, rear the gigantic oak, and build up the wonderful structure of man.

"It is not contended here that in nutrition each new cell is not, as a general thing, similar to the one whose place it supplies in the tissue, more than it would be that the offspring is not similar to its parents. But this is the goal of assimilation arrived at by successive alternate or equivocal generations, starting from certain nitrogenized compounds or germs in the alimentary canal and lymphatic system; just as an independent individual, similar to its parents, is the goal of reproduction arrived at through successive alternate generations, starting universally from a single germ-cell. When air, heat, and moisture are applied to a seed, decay commences, life-force is produced, and germination is the natural consequence. If a seed be ground to powder, and air, heat, and moisture applied, each separate particle of the germ, in its decay, would evolve life-force as much as if the seed had been left entire—as is observed in fermentation; but, as the force of all the granules is not concentrated as it would be in the perfect seed, there is not produced an individual plant similar to the one which produced the seed. As the formless material secreted by the epithelial-cells of the tubuli seminiferi, contains germs of cells from which are evolved, by equivocal generation, the spermatozoa; so, the formless material secreted by the glands emptying into the alimentary canal, contains germs of cells which commence the wonderful process of converting an aplastic into a plastic material. The fact that digestion can take place out of the body when the gastric juice is furnished, is no argument against its being a vital action, for the conditions of *life* are a germ, a fluid-plasma, air, and heat, and it matters nothing *how* these may be furnished. If it were possible to supply all the conditions artificially, life would result no less than if supplied by nature; but, as the natural tendency is to decay, and life is produced by the decay of an *organism*, the germ *cannot* be produced except by a previously existing organism. If the germs be furnished by *nature* and the other conditions by art, the actions which follow would be the same as if all were furnished by nature. Therefore the fact that the gastric juice will dissolve food out of the body, does not prove it not a vital action; though, if our proposition be true, it is chemical also, as well as all other vital actions. Coagulable lymph is effused in a fluid state; soon cells begin to be formed, and after a time they are united and form a solid tissue; so the secretions which are discharged into the alimentary canal would be expected to be fluid, though they contain germs needing only proper conditions to be speedily developed into cells. These cells are not similar to the epithelial-cells which produced the germs, therefore they are equivocally generated, as are the epithelial-cells themselves; for they are not produced by epithelial-cells, since the *basement-membrane* has a different origin. Thus the process of nutrition, as well as reproduction, commences from germs secreted by epithelial-cells, and is a process of equivocal generation."

From the foregoing extracts, some idea will be derived of the doctrine of organic or life-force advocated by Dr. Watters, and of the general scope of the arguments by which that doctrine is enforced. Many views of a highly interesting character are presented by him, either arising out of his leading proposition, or adduced as additional evidence of its correctness, which we have not noticed; the true value of these cannot, in fact, be well appreciated, ~~excepting they be~~ studied in the order and connection in which they occur in the essay before us. To such of our readers as feel an interest in one of the most obscure questions in physiology, we recommend a careful perusal of the entire essay, which we understand is for sale by the publishers. Dr. Watters has, we believe, pointed out the leading proposition that, in its more full development, will be acknowledged to constitute the true doctrine of vitality.

That the doctrine, as presented by our author, is unattended with difficulties, we are not prepared to admit. We feel inclined to object even to the terms in which his leading proposition is expressed. Without denying that life or the actions of an organism, are the result of forces evolved in the reciprocal action upon each other of the materials entering into the composition of the organism; that this reciprocal action is precisely the same as takes place in inorganic matter; that the one form of matter is subjected to no influences from which the other is abstracted;—without denying that the difference in the phenomena produced in the two cases is solely dependent upon the particular arrangement and combination in which matter is present in the organic state, and the absence of that arrangement and combination in its inorganic condition;—admitting also that its capacity for the development of life-force may be destroyed by the change produced in organic matter from the reciprocal action upon each other of its constituents—by their chemical change, if you please—it must be evident that this decomposition or decay of the organism is as much an effect of the actions by which life-forces are supposed to be evolved, as are those forces themselves. Hence we conceive it to be incorrect to say that the latter are evolved in or by the decomposing or decay of the organism, both being equally effects of the changes that take place in the condition of the matter constituting the organism.

The form of expression made use of by the author is, in fact, often defective, even where the idea intended to be conveyed by him has all the characteristics of truth. D. F. C.

Art. XXIII.—*On Syphilis, Constitutional and Hereditary; and on Syphilitic Eruptions.* By Erasmus Wilson, F. R. S. London, 1852: 8vo. pp. 235.

The subject of syphilis has attracted attention in proportion to its diffusion and importance. Since Mr. Hunter devoted his rare powers of observation and generalization to its elucidation, the disease has been most zealously and successfully investigated by a host of able men; so that the modern literature of this speciality is now quite as extensive as that of any other. There are several points, however, which are still more or less obscure; and to some of these Mr. Wilson, with whose scientific attainments and general qualifications for conducting such studies our readers are all familiar, has devoted a portion of his time. The peculiar effects of constitutional syphilis, as manifested in the development of cutaneous eruptions, have occupied the larger part of his attention.

We shall give a brief sketch of the contents of the volume.

The first chapter considers the characters and peculiarities of the syphilitic poison.

The *common* mode of transmission of the poison, the author remarks, is through the agency of a morbid secretion poured out upon the surface of a syphilitic sore: this secretion being saturated with the poison. An abraded surface presents, of course, the most favourable conditions for rapid and certain contamination; but, as Mr. Ceely has demonstrated with regard to the vaccine virus, such an abrasion is by no means necessary, the poison of syphilis as well as of the vaccine disease being capable of being absorbed from an unbroken surface, provided it be retained upon it a sufficient length of time, and in a sufficiently moist state.

Mr. Wilson contends that there is still another method by which syphilis may be, and often is communicated to a previously healthy person: "It is that in which a man or a woman having been contaminated by the poison, and having been, to all appearance, cured of the consequent disease, has, nevertheless, become so saturated with the virus, as to possess the property of communicating syphilis to a sound person, by means of his secretions. This mode of transmission is so important that I will proceed to illustrate it by means of cases which have fallen under my observation:" (p. 3.) One of these cases will serve as an example. We will take the first. A gentleman had a small venereal sore on the prepuce, in the month of November; it got well speedily. In the succeeding February, he had sore-throat and rheumatic pains, slight in character. In March, he married. In the following June, a furuncular abscess appeared upon the upper and inner part of one of the thighs of the wife, which left an exceedingly obstinate sore; moreover, a rash showed itself upon the skin. These symptoms, under a modified treatment, disappeared; but subsequently a few pimples broke out upon her body; she had a feeling of soreness in her throat, but without congestion; her skin was muddy and discoloured; and her husband had an attack of iritis. The furuncular abscess, Mr. Wilson considered as of the common kind; but its indisposition to heal, and the breaking out of the eruptions, he attributes to the contamination of the wife's system by absorption from the syphilis-tainted urethral or seminal secretions of the husband. He remarks also in connection with another case, "The question of the liability of a healthy woman to become infected with syphilis by a nurse-child, I hold to be a fact beyond the reach of doubt." The instance which he cites to prove this is, undoubtedly, as strong a one, apparently, as could be presented. But it may be fairly objected to the validity of the first case, that we have no assurance that the husband had not a chancre, at the time of his marriage, which was capable of communicating the disease to his wife; and the only evidence as to the immunity from syphilis, primary as well as secondary, of the two women who acted as nurses, in turn, to the child, in the second instance alluded to, is the assurance by the physician who reports the case, that they were *respectable married* women, and that the husband of one of them "was perfectly free from any trace of venereal disease." The nature and accuracy of the examination instituted by the physician to place this fact beyond suspicion are not mentioned. Now, it would have been very easy, and much more satisfactory for the argument's sake, for Mr. Wilson to have tested by *direct inoculation*, whether the secretions from the skin and other parts of persons suffering under constitutional syphilis, are really capable of inducing the disease. But the author has recorded no such experiments; indeed, he says that, "No experiments in the world can shake the force of the conclusions" which he derives from the cases which he records, and others like them: (p. 14.) We do not think that these are by any means conclusive; they are all open to the grave suspicion that primary symptoms existed at the very time, and cannot be admitted to set aside the rigid analysis and the positive experiments of John Hunter, Ricord, and other intermediate investigators, which have made it almost, if not wholly, a matter of demonstration, that constitutional syphilis is not contagious.

It is well known that many surgeons admit that *gonorrhœa* may give rise to secondary symptoms. According to Ricord and his disciples, this can only occur when there is a *chancre* at some point which permits its specific secretion to mingle with that of the inflamed mucous membrane. But Mr. Wilson explains the phenomenon upon the ground of the contagiousness of constitutional syphilis. He says (p. 19), "The recognition of the contagion of constitutional syphilis, a fact too obvious to admit of a moment's hesitation, will go far to explain a circumstance which must have fallen under the observation of every unprejudiced investigator of the syphilitic poison and its manifestations, namely, the occurrence of syphilitic eruptions and other symptoms of constitutional syphilis after gonorrhœa. When we see a man perfectly free from any primary symptoms of disease, communicating syphilis to his newly-married wife, by his secretions alone, can we doubt the possibility of a similar result accruing from a syphilitic secretion poured out by the mucous membrane, as happens in gonorrhœa? I do not say that every gonorrhœa is syphilitic; on the contrary, I know that few are so, but those few have as much the power of transmitting syphilis as an undoubted chancre." And, in continuation, he gives the case of "a medical man who had gonorrhœa, but neither excoriation nor sore:" after exposure to great inclemency of the weather, however, he was attacked with rheumatic fever, eruption on the skin, and iritis. Ten years afterwards, he again suffered from gonorrhœa; and subsequently another series of constitutional symptoms appeared. Yet, notwithstanding the ease with which certainty might have been arrived at in this case, viz. by the inoculation of some of the gonorrhœal discharge, and only by this process, this mode of diagnosis is neglected, and the nature of the local affection is permitted to rest upon the assurance of the medical man, "that he felt convinced that he could not have had a chancre in the urethra." If the *secretions* in constitutional syphilis are to be considered as possessing contagious properties, then, as Mr. Hunter argues, much more must the *blood* be regarded as poisonous; and consequently, "no person that has this matter circulating, or has the lues venerea, could escape having a venereal sore whenever he is bled or receives a scratch with a pin, the parts so wounded turning into a chancre." (Palmer's ed. of Hunter's *Works*, Philad. vol. ii. p. 239.)

In the second chapter on "primary syphilis," the views entertained by the most authoritative writers are adopted, and briefly stated. With regard to the much discussed question, as to the cause and nature of the specific induration of chancre, Mr. Wilson is of the opinion that this condition "is itself a manifestation of constitutional action; in other words, the induration is a constitutional affection superadded to the primary disease." p. 27. This view coincides with that which is so well advocated by Ricord in his *Lettres sur la Syphilis*, Paris, 1851, 19th letter, in which he says that the indurated chancre is to syphilis what the true variolous pustule is to variola; what the genuine vaccine pustule is to vaccinia; the evidence, namely, of constitutional implication. And he further states that, "*as a general rule*, a patient who has once had an indurated chancre, never has another."

In the third chapter, the author points out the analogies and the differences between the peculiar form of fever, or constitutional reaction, which follows upon the introduction of the syphilitic virus into the system, and the exanthematous fevers. He considers that "this inflammatory movement, or syphilitic fever, is a sign of the accumulation of the poison within the blood, to such a degree as to disturb the healthy functions of the body, and is attended with symptoms which indicate derangement of the nervous, vascular, and digestive systems, and especially of those surfaces of the body through which it is possible for elimination to occur: " (p. 30.)

But numerous as are the points of resemblance between the syphilitic and the exanthematic poisons, in their respective manifestations upon the system, the differences are even more striking. And these discrepancies Mr. Wilson ascribes to a radical difference in the nature of the poison. The virus of measles, scarlatina, and smallpox, originates in conditions extraneous to the system;

it reaches the blood as an agent foreign to its nature, and immediately upon attaining the point of saturation it excites an explosive effort for its elimination, under certain regular laws of sequence and time; and after the poison has once been entirely thrown off, the system usually enjoys an exemption from subsequent contamination. The syphilitic *materies morbi*, on the other hand, originates within the body, and "is probably little more than a modification of the natural secretions; it is consequently less irritant in its nature, and it tends to assimilate with the blood, and with the tissues, rather than to excite an action which may result in its removal. Hence the poison is slow in accumulating, its excitation of febrile symptoms seems rather a matter of accident than the consequence of an irresistible law; the patient enjoys no immunity from a recurrence of the morbid action, and the poison is only partially removed by the febrile effort:" (p. 34.)

In the succeeding hundred pages, the progress of the disease is studied and explained in accordance with this view, its different phases being regarded more or less in the light of so many efforts made to rid the system of its implacable and murderous invader. Accordingly the various forms of the diffused cutaneous eruptions are described, as well as the more local implications of special parts or tissues.

The peculiarity of Mr. Wilson's views appears, if we understand him aright, to consist in his explaining all the seemingly varied eruptions by virtue of a mere modification in the form and degree of the congestion of the skin. Thus he says that the syphilodermata present two principal forms, the one being simply congestive and unattended with elevation of the skin; the other presenting an obvious elevation. To the former group belong roseola, the maculæ, and erythema; to the latter the papulæ of lichen, and the tuberculæ. But these differences, he admits, are more apparent than real, and may be looked upon as stages of development of the same disease. Roseola, by an easy gradation, is converted into lichen, or tubercular syphilis, and these latter, by simple subsidence, become syphilitic maculæ. His classification of the eruptions is very simple, these being only three in number: "1, simple congestion of the skin, constituting *Roseola* and *Erythema*; 2, congestion, with elevation of separate follicles, constituting *Lichen;* and 3, congestion, with elevation of a small group of follicles, or uniform tumefaction of a small portion of skin, exceeding two lines in diameter, constituting *Tubercula*. These may be considered as typical examples of cutaneous syphilis; and all the numberless modifications which are met with in practice may be referred to one or the other of the above three heads:" (p. 42.)

We shall not enumerate all the subdivisions, although they are not very numerous. They are amply described in the text, and illustrated both by numerous cases and by beautiful drawings. Thus it will be seen that the diagnosis of the syphilides is materially simplified by the author. Whether he is right or not, we do not pretend to say; but his thorough investigations into the anatomical and physiological peculiarities of the skin, certainly give great weight to his opinions, and incline us to adopt his views.

The chapter on *Congenital*, and *Hereditary Syphilis*, are exceedingly interesting, in some respects, and are amply illustrated by examples from the author's clinical experience. He seems firmly impressed with the conviction, from his large observation, that many of the intractable and dangerous forms of cutaneous disease are of syphilitic origin, and he especially enumerates *scrofula* and its various manifestations, as also *lupus, kelis, lepra*, and *psoriasis*. We are not by any means prepared to admit such a sweeping conclusion as this; nor do we see anything in the circumstances of the cases cited by the author as illustrating his views, which are calculated to elevate the latter above the character of loose and vague conjectures, such as men are too apt to invent, when speculating about subjects which have occupied much of their time and regard. Indeed, the author advances it as an hypothesis hereafter to be established, rather than as a settled fact. We suspect it must ever remain a mere matter of speculation.

The *treatment* of syphilis receives its due share of attention in the concluding chapter.

First, as to the *prophylaxis*. Inasmuch as it is necessary to the occurrence of infection that the virus shall remain a certain length of time in contact with the mucous membrane or with the skin, the most obvious method of guarding against the absorption of the poison is to wash the parts carefully and thoroughly. Mr. Wilson advises that the male should wash with *soap and water*, and that the female, in addition to the use of the same externally, should inject the vagina with weak vinegar and water, and subsequently bathe the external parts with a similar lotion. These operations should be performed with great care, to insure thorough removal of the virus from the numerous folds and follicular orifices. "Acids and alkalies possess the power of destroying the poisonous qualities of the syphilitic poison;" but in order that these fluids shall exert their power, they must be brought in contact with every lurking atom of the virus, for so subtle and powerful is the latter that, according to Mr. Acton (Am. ed., p. 238), "one drop has been diluted with a pint of water, and the inoculated fluid has produced a pustule." If there be an excoriation upon the surface, it should be lightly touched with nitrate of silver, and covered with lint.

The *curative* treatment divides itself into the local and the general.

If a patient present with a papule, a pustule, or a small ulcer, which has just appeared, this should *immediately*, and whether there be any doubt of its specific character or not, be touched with some caustic application, "with the double view of destroying the morbid structure of which it consists, and of setting up a new and healthy action, in place of the poison-generating one already in existence or about to begin:" (p. 189.) In the choice of a caustic, says Mr. Wilson, "I have long given the preference to *potassa fusa;* with it the destruction of the tissues is effected totally, and the extent of destruction may be regulated with the utmost nicety. The potassa cum calce (Vienna paste) comes next in the list of preference; then chloride of zinc, which is objectionable on account of the pain to which it gives rise; then follow nitrate of silver, nitric acid, and the actual cautery, all of which I consider to be perfectly useless. If a patient were to tell me that his surgeon had cauterized the primary affection within an hour of its first appearance with the nitrate of silver, I should consider him as ~~certain to have constitutional syphilis~~ as if the sore had been left to itself," &c. After the cauterization, he advises the application of a piece of lint moistened with a solution of the watery extract of opium (ʒj of ℥iv), and over this the common tepid water dressing; rest, and support of the organ, in the male, should be enjoined; attention should be also paid to the condition of the skin and digestive organs.

If the primary affection be not seen until a few days have elapsed, "constitutional treatment is most necessary and most important." The indications of treatment he considers to be: 1, "to prevent the increase of the poisonous ferment in the blood," and 2, "to cause the removal by the natural emunctories of the body of the noxious poison, as rapidly as it may be formed." To fulfil the latter indication, he regards "*Mercury*, of all the known remedies for syphilis, as that which has for the greatest length of time maintained its character and warranted the confidence of medical men; and for the simple reason that mercury alone possesses the power of acting upon all the emunctories of the body; it excites action in the bowels, the liver, the kidneys, the mucous membrane, and even in the skin; mercury, then, deserves to be considered the great antidote of syphilis." Of the different preparations of this drug, Mr. Wilson prefers the *blue pill*, where it can be procured perfectly pure, in from two to five grain doses, to be taken for the first five or six days at night only, and afterwards night and morning. He regards it, however, as inapplicable to the treatment of the inflammatory and phagedenic sores; "these must be treated according to the common principles of surgical medicine."

It is not necessary that we shall follow the author in his details of the treatment; we shall merely remark that in these he displays his usual caution and judgment in the enforcement of his particular views.

In the treatment of the manifestations of the *chronic forms* of syphilis, the *tertiary* period of Ricord, mercury he considers to be decidedly injurious, and employs the iodide of potassium, cod liver oil, Donovan's solution, &c.

In conclusion, we take pleasure in observing that, although we have not been able to agree with the distinguished author in some of the views which he has advocated in his book, we yet commend it to our readers as unfolding new views of syphilis in many of its aspects, and as containing many simple and satisfactory aids in its diagnosis and treatment. The text is illustrated by four exquisitely finished plates, which exhibit very well the characteristic appearances of many of the syphilides. Our readers are doubtless familiar with the illustrations accompanying Mr. Wilson's book on *Diseases of the Skin*, published some years ago; and it is only needful for us to say that the plates belonging to the volume under notice are executed in the same artistic manner as were those.

We understand that Messrs. Blanchard & Lea are preparing for the press a reprint of this book; and that it is their intention to spare no labour or expense to render the American as nearly as possible equal in excellence to the English edition.

F. W. S.

ART. XXIV.—*Über secondäre Erkrankung einzelner Rückensmarksstränge und ihrer Fortsetzungen zum Gehirne.*
A Consideration of the Secondary Degeneration of Particular Fasciculi of the Spinal Cord, and their Continuation to the Brain.—Transactions of the Imperial Academy of Science, Vienna, Vol. VI. part 3, 1851.

THIS is the title of a very curious and highly interesting memoir read before the Austrian Imperial Academy of Sciences, by Dr. LUDWIG TURCK, and printed in the third number of the sixth volume of their *Transactions*. (1851.)

The author states that he has found a peculiar pathological alteration of the spinal cord subsequent to disease of the brain, which consists in a deposit of numerous granular cells upon the side of the spinal marrow opposite to that portion of the brain in which disease has originated; and that he had communicated these observations to the "Society of Physicians of Vienna," in the year 1850.

It since occurred to him that this fact might be constant in regard to particular fasciculi of the spinal marrow, without involving the entire structure of the cord, in which there was an alteration of tissue. Induced by such conclusions, Dr. Turck commenced a series of careful examinations, by which he became convinced that particular fasciculi were always secondarily diseased, depending upon that point of the brain or spinal marrow which was the focus of morbid action; such fasciculi only becoming altered as were in direct connection with these diseased points; and that thus information was attainable relative to the origin and office of such fasciculi.

The manner of procedure was as follows: after the spinal nerves had been exactly counted to establish the precise portion to be examined, the cord was horizontally divided by a pair of sharp scissors, and the stump obtained in this way turned upwards, and its exact contour, as well as that of the gray matter, delineated with precision. Next, from a very small portion of the horizontal surface, a thin layer of medullary matter is removed by a pair of delicate scissors curved at the point; this portion of the surface selected for examination being marked on the magnified drawing, previously made, of the entire section. The fraction removed is then subjected to the most accurate microscopic scrutiny, and the result written down under a letter of the alphabet, corresponding with a letter assumed to distinguish the same relative point on the previously delineated plan; this was continued until the entire surface had been thoroughly examined. Dr. Turck contends that the formation of granular cells is not a propagation of the abnormal condition from the point of disease, but the consequence of the loss of function in fibres which no longer receive those impulses requisite to continue them in the discharge of their duties; and as in other structures, the loss of function involves a degeneration of tissue, the fibres of nerves no longer conveying the currents of nervous excitation degenerate in obedience to a universal law. In evidence that these granular cells are not propagated from a diseased point, Dr. Turck has never observed them earlier than six months after the occurrence of disease in the nervous centres, and then not in a decreasing ratio from such a point; but he has known the spinal marrow remain in apparently perfect health, while the walls of an effusion were thickly covered by these abnormal products, and upon their subsequent appearance he has seen them select certain portions of the spinal cord, as for instance, just above the origin of the plexus of the lower extremities, to appear in much greater intensity than nearer the seat of disease.

Paraplegia offers a good example of the course of this degeneration of structure, the granular cells being found in such cases in large numbers at the seat of injury, from whence they diminish rapidly, till, within a short distance, they are entirely confined to the exact outline of individual fasciculi, in which they mount upwards as far as the pons Varolii. These were in no instance the same fasciculi in which a deposit was found secondary to disease of the brain; the latter fasciculi remaining in paraplegia entirely free, from the circumstance (deduced from these observations) that these fasciculi, having a different office to fulfil, only sympathized with disease at points from whence they derived their functional power. Upon the occurrence of effusion into the spinal column, for instance, a deposit of granular cells must, after a time, ensue, in consequence of the abrogation of function of the various fasciculi composing the cord, either above or below the point of disease regulated by the employment of these fasciculi; those devoted to the conveyance of centripetal currents degenerating above the point of effusion, and those used for centrifugal purposes below. The fact of these fasciculi being centripetal or centrifugal, being derived by *à posteriori* reasoning from the observance of constant deposits within their walls.

With reference to a very natural conclusion that these granular cells would be produced in an exuded fluid, observation teaches that the smaller capillary vessels of a part, those that would naturally take important action in the production of such a pabulum, are comparatively free from the presence of these abnormal products: while the larger vessels have granular cells congregated around their external walls, as a thread is converted to a similar purpose when suspended in a saline solution, and becomes a fixed point for crystalline deposit. Another argument against these results being the product of exudation, is the fact of the exact limits to which they are restricted in being confined exclusively to individual fasciculi; and as Dr. Turck has never observed the slightest vestige of inflammation, it would seem that these abnormal cells were rather the consequence of anomalous nutrition, or a product of decomposition in structures no longer required to discharge a previous function. Dr. Turck states that he has seen cases in which the distribution of cells exceeded the limits that a strict accordance with the above conclusions would have prescribed for their occurrence; for such a condition he confesses himself at present unable to account.

Now, instances of this kind are very far from being a defect; for they disarm the opposition which novel representations are always apt to excite, of the weighty accusation that the entire explanation afforded is rather the result of preconceived theoretical direction of mind coercing observation, than an honest exposition of fact; it being an inherent attribute of theorists to prescribe for all cases a solution, instead of waiting for truthful observation to offer amendments.

The granular cells increase in size in proportion to the long continuance of disease, and are often a precursor of atrophy; a result which Rokitansky mentions as occurring in certain portions of the nervous system secondary to local affections, and on one occasion he witnessed the loss of an entire hemisphere.

These cells are soluble in ether; and in a high grade of disease exhibit the presence of free globules of fat.

The following is a translation of the *résumé* which Dr. Turck has made of the deductions which he drew from his examinations; and embodies everything of value that could be condensed from details of observation and processes of reasoning, given at length in the original paper in the *Transactions of the Imperial Academy.* This *résumé* is now presented, accompanied with his method of procedure, to American observers, to receive that consideration which its merits may demand; and, free from the cliques and jealousies of rival European schools, it is for them to decide upon its worth—to engraft upon it the results of their own labour should the stock prove good, and to reject it if, upon a more thorough acquaintance, it should be found without value; in either case, having first weighed the question with a steady hand in the scales of justice.

1st. When, owing to protracted disease in the brain or spinal column, the nervous currents, through certain fasciculi, remain for a length of time interrupted, these fasciculi, in consequence of the abrogation of their office, have produced within them numbers of granular cells; these represent the beginning of a more complete metamorphosis, to be perfected after a further lapse of time.

2d. When in such cases, transverse sections are made through the spinal marrow, medulla oblongata, pons Varolii, and the brain and its ganglia, and those points which are shown by the presence of abnormal cells upon these sections to be diseased are compared with reference to their position, we are enabled to pursue the anatomical track of these secondarily diseased fasciculi, and to arrive at conclusions with regard to the course of nervous currents. The results which follow agree in part with the previous views of the direction of nerve-fibres, and are partly such as could not be reached by anatomy and physiology alone.

3d. A fasciculus of the spinal marrow descends from the crus cerebri, continuing through the longitudinal fibres of the pons Varolii and pyramid of the same side, until, reaching the decussation of the latter in the medulla oblongata (in one case in two fasciculi), it passes over to the opposite side, and descends almost to the extreme end of the spinal cord, constituting the posterior half of its lateral column. This we designate the "pyramidal track of the lateral column."

4th. The "pyramidal track of the lateral column" conveys a centrifugal current proceeding from the prominentiæ lentiformes, corpora striata, optic thalamus, and medullary matter of the cerebrum (of which it cannot be said with certainty that it is a motor impulse), towards that side of the body opposite to the diseased half of the brain, but to the same side on which the fasciculus conducting this current is placed in the spinal column. This track is found to be diseased secondarily throughout, in cases of chronic apoplexy and other encephalic affections.

5th. A second fasciculus proceeds from the crus cerebri, and through the pons Varolii of the same side, as longitudinal fibres; but, instead of crossing in the medulla oblongata, as was the case with the preceding pyramidal track, this second fasciculus descends on the same side of the spinal cord as an internal division of the anterior column. Where, however, its secondary affections terminate rather higher than those of the posterior section of the opposite lateral column, this we call the "enveloping track of the anterior column."

6th. The "enveloping track of the anterior column" conveys an impulse in a centrifugal direction to that side of the body opposite to the disease of the brain, and likewise opposite to the conducting track of the spinal marrow; and brought from the prominentiæ lentiformes, and corpora striata. This track, probably, conveys a motor impulse, and it is found secondarily affected when disease exists in one or both of the last-mentioned ganglia of the brain.

7th. With the exception of the above-mentioned tracks, neither the gray matter, nor any other of the fasciculi was found diseased secondarily to affection of the brain.

8th. It is not decided whether the motor impulses, proceeding from the cerebrum, are conducted downwards through these two above-mentioned tracks alone, or seek some other way.

9th. The internal section of the posterior column continues through the soft fasciculi of the crura, and appears to reach its final termination on the floor of the fourth ventricle. By this track a centripetal nervous current is conducted, and it is found secondarily diseased above that point in the spinal cord at which effusion has destroyed the conducting power and arrested the centripetal stream.

10th. A second likewise centripetal tendency is found in the posterior half of the lateral column, and consequently a deposition of granular cells within this track above a point at which an affection of the spinal cord may have occurred. In this posterior half there is both a centripetal and centrifugal conduction. The fasciculi united in the posterior half of the lateral column separate in the medulla oblongata, the centrifugal coming from the pyramids, whilst the centripetal in the medulla directing itself always more backwards mounts to the corpora restiformia.

11th. With the exception of the centripetal tracks mentioned in number 9 and 10, neither the gray matter nor any other fasciculi of the spinal cord were found secondarily diseased.

12th. Whether through these two tracks the sense of muscular tonicity or ordinary sensation is manifested remains at the present unascertained.

13th. The remaining fasciculi of the spinal cord are to be considered as separated in their anatomical and physiological character from those that have been treated of above. In the first place, the separation in the cervical portion of the spinal marrow exhibited between the external and internal sections of the anterior column by the sulcus intermed. anterior, is established as a complete division of those parts extending to the lowest extremity of the spinal cord. The same is probable with regard to the separation of the posterior column into two lateral sections by the sulcus intermed. posterior, although this is only demonstrated so far as the fourth thoracic pair of nerves. A similar division is found between the anterior and posterior sections of the lateral column, not exhibited, however, by any external mark of separation. Each half, therefore, of the spinal cord includes six fasciculi. Secondly, it is evident that these fasciculi do not conduct a centripetal current originating in either the lower extremities or the lower section of the trunk; perhaps they may serve for such currents from the upper extremities, or the superior portions of the trunk, but this is not probable. And it is yet undecided whether these tracks are used by centrifugal stimulation having its origin in special portions of the greater or lesser brain.

14th. The gray matter is not subject to the formation within it of these abnormal cells; from which, however, no conclusion can be absolutely drawn with regard to its powers of conduction. C. W.

Art. XXV.—*Elements of Chemistry; including the Applications of the Science in the Arts.*—By Thomas Graham, F. R. S., Professor of Chemistry in University College, London; Vice-President of the Chemical Society, &c. &c. Second American from an entirely revised and greatly enlarged English edition, with numerous wood engravings. Edited, with notes, by Robert Bridges, M. D., Professor of Chemistry in the Philadelphia College of Pharmacy, &c. Philadelphia, Blanchard & Lea, 1852: 8vo.

The sciences are now engaging the attention of mankind to such an extent as to draw to their investigation the ablest minds, and from this has resulted their rapid advancement, the discovery of new facts, the correction of old views, and the formation of more just conceptions of their phenomena. In the science of chemistry this is particularly the case, and this involves the necessity, in every successive edition of any work on this subject, of a strict revision and adaptation to the advances made, and the incorporation of recent discoveries, when in conformity with the objects of the publication. The present edition of Graham's Chemistry evinces that the author has been fully impressed with the above views, as will be evident to any who will compare it with the first. Although only comprising one-half of the work, the matter added has enlarged its extent about sixty pages, including numerous additional illustrations by cuts. The alterations in the original text consist of occasional corrections, numerical and others, interpolation of additional observations, varying in extent from short sentences to whole pages, and in re-writing parts or the whole of some subjects, so as to convey an accurate knowledge of the present information on these points. In some instances the arrangement has undergone alteration, and with advantage in approximating kindred subjects which were before too distant. These differences from the first edition are too numerous for any detail, very frequently being apparent in each of several successive pages, and very seldom exhibiting any long interval. The merits of this work are so well known that comment is unnecessary, and the present edition is calculated to sustain, and indeed elevate, the reputation the author has already acquired.

In the typographical execution there is an evident improvement over the first American edition, and there will also be noticed a modification in the arrangement, in the almost total absence of foot notes, the additions of the editor being inclosed in brackets, and with the bibliographical references incorporated in the original text of the work. In regard to these latter, it will be noticed that their number, which in the first edition was very great, has been still further increased, not in the newly-added matter only, but also in the older parts—a very valuable aid for those who desire to investigate any subject in all its details.

ART. XXVI.—*Review of Materia Medica, for the Use of Students.* By JOHN B. BIDDLE, M. D. etc. etc. With illustrations. Philadelphia, Lindsay & Blakiston, 1852: 12mo. pp. 322.

THIS work belongs to a class of productions which, when kept within their proper sphere, are unquestionably calculated to facilitate the labours of the student in the particular branches of knowledge of which they treat, but which, when adopted as substitutes for more extended and elaborate treatises, are productive of no little mischief. As condensed reviews of the elements of the science to which they refer—embracing a brief summary of its leading facts and principles—they may serve as useful guides to a course of lectures, while at the same time they will aid the student in his mental review of the knowledge to the acquisition of which his time and attention have been devoted; correcting misapprehensions, indicating to him what may have escaped his notice, and recalling such points as had been but slightly impressed upon his mind, and, in consequence, liable to be quickly forgotten. When, however, as is too often the case, they are made the sole guides to science—when the student believes that, by committing the brief summary they present of leading facts and principles to memory, he has acquired an adequate acquaintance with any given branch of science—their tendency is then in the highest degree mischievous. They discourage close and prolonged application—that full and thorough acquisition of knowledge which can alone render it permanent and profitable; and, by substituting in the student a mere act of memory for the exercise of the reasoning, the judging, and the comparing faculties of the mind, works of the character referred to are liable to impede even the subsequent progress of those who have been so unfortunate as to make them their sole guides, rendering to such the most favourable opportunities subsequently presented for improvement in any department of science, barren and profitless.

Keeping in mind then that the work before us is to be viewed as a mere elementary treatise on the Materia Medica, as an outline only of the leading facts and principles usually comprised in this branch of medicine, as set forth by the standard authorities; as a review of, rather than as an exposition of the science of which it treats, we can freely recommend it to the attention of the American student.

It is, in fact, a judiciously executed manual of materia medica, indicating a perfect familiarity with the subject on the part of its author, and an admirable facility in condensation: all that is actually important in relation to the several received pharmacological remedies being concisely indicated, but at the same time with the utmost clearness and precision.

D. F. C.